BSD costlink®/AE

User Manual

Building Systems Design, Inc.

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Preface

About This Manual

This manual is an introduction to CostLink/AE and an aid to learning its use. Each chapter provides detailed information about the functions of the software. Step-by-step instructions guide you through using the features, and a tutorial walks you through creating a small estimate.

NOTE: For installation instructions, directions for moving the software, and system requirements information, see the Installation document available from our Download Center.

Chapter Summary

While the Table of Contents and the Index contain detailed information to aid you in finding information in this manual, in general the following is what you will find in each chapter:

Chapter 1: Introduction

Contains an overview of CostLink/AE and the R.S. Means data.

Chapter 2: Tutorial

Follow the instructions in this chapter to learn CostLink/AE by creating a small estimate.

Chapter 3: About the CostLink/AE Display

If you are not familiar with arranging multiple windows on your computer, read this chapter for information on tiling windows. This is an essential skill when working with CostLink/AE. The chapter also contains information on arranging panels, a list of the icons in the software and their meanings, how to customize the toolbars, and how to use the online help.

Chapter 4: Projects, Models, Tasks, & Markups

Provides detailed information on how to create and open estimates, use models, add tasks (assemblies and line items), and apply markups.

Chapter 5: Reports

Describes the process of creating reports and the options available when printing reports.

Chapter 6: Tools and Techniques

Provides detailed information on using most of the features of the software that were not covered in the previous chapters. These include ways to:

find information (Find)

attach additional information to an estimate (Notes and Pictures)

copy and move folders and tasks (tips on right-click, copy and paste, etc.)

remove extra (empty) folders easily

reuse existing estimates (Copy Project)

fix technical problems with projects (Compact Database)

save backup copies of projects or save a copy you can fit in an email (Save To and Load From Compressed)

add commands to the Tools menu so that you can open other programs from within CostLink/AE

Chapter 7: Linking

Contains information and directions for linking the quantities of tasks to the quantities of folders so that you can change the quantity on a folder and automatically recalculate how much of each task is needed for the new quantity. You can also link an estimate to an Excel workbook.

Appendix A: Toolbar and Menu Reference

Lists all toolbar buttons and menu commands along with a short description of each.

Appendix B: R.S. Means Abbreviations

Lists abbreviations used in the R.S. Means databases.

Suggestions and Corrections

If you have suggestions or corrections for this User Manual, please email them to support@bsdsoftlink.com. Please be sure to include the name of the manual and the page number. We appreciate your feedback.

Introduction To BSD CostLink/AE

This chapter introduces BSD CostLink/AE and the included RS Means data. In this chapter, you will find:

- An overview of BSD CostLink/AE,
- An overview of the RS Means costs, and
- An overview of estimating using assemblies.

BSD CostLink/AE Overview

Welcome to a cost-estimating package specifically designed for architects, engineers, and others who are doing budgets, cost plans, and design development estimates. CostLink/AE® is also useful to subcontractors preparing proposals and quotes who want to be able to reference a significant library of RS Means data.

BSD CostLink/AE is a subscription service that includes annually updated cost data from industry leader RS Means. CostLink/AE combines unlimited telephone support and regular software updates with over 11,000 systems and assemblies, 24,500 line items, over 77 parametric cost models, and cost indices for 700 U.S. and Canadian locations in a single subscription.

The RS Means data is derived from material, labor, and equipment components. The data is formatted as a single unit cost that includes the pre-computed RS Means subcontractor overhead and profit. This data is described in more detail later in this chapter.

Building an Estimate

The simplest way to create an estimate is to start with one of the parametric models provided with the software. Alternatively, you can construct an estimate by using drag-drop or copy-paste of entire building systems, assemblies, and line items into a project hierarchy, either pre-defined or constructed on the fly. AE makes it easy to place project and data windows side-by-side, assigning cost items to appropriate project folders.

Estimate Structure, Adjustments, and Markups

Templates for Uniformat II, MasterFormat, and a User-Defined hierarchy are provided along with a useful sample project. A single tab on the Summary Info dialog box allows you to choose a location (by selecting your state and city) that automatically adjusts your estimate. You can also add sales tax and modify the default prime contractor markups. The same tab lets you assign percentage markups for other costs such as contingency, escalation, and A/E design.

Modeling

The commercial building cost models provided with the software provide a convenient way to build an estimate early in a project, before any of the major systems have been selected. This model estimate can then be refined as the project design is developed, by adjusting quantities and by substituting assemblies and line items for those assumed by the model. A single tab on the Summary Info dialog box allows you to select a model from the three available categories: Commercial, Institutional, and Industrial. You then enter the gross building area and the length of the building perimeter, select one of six exterior closure and framing systems provided for each model, and review or modify the main model building parameters that serve as the basis for all model cost computations.

Green Models

Consistent with expanding green trends in the design and construction industry, RS Means has introduced 25 new green building models. Although similar to the standard models in building type and structural system, the new green models meet or exceed Energy Star requirements and address many of the items necessary to obtain LEED certification. Although the models do not include site-specific information, the design assumption is that they are located in climate zone 5. DOE's eQuest software was used to perform an energy analysis of the model buildings. By reducing energy use, we were able to reduce the size of the service entrances, switchgear, power feeds, and generators. Each of the following building systems was researched and analyzed: building envelope, HVAC, plumbing fixtures, lighting, and electrical service. These systems were targeted because of their impact on energy usage and green building.

Linking

Within an estimate, you can link the quantities of assemblies and line items to the quantities of the folders that contain them. You can even link the quantities of the folders to the quantities of the folders above them. For example, if you are estimating a room that is 250 square feet, then you need 250 square feet of flooring and 250 square feet of ceiling tile. You can create a folder called "room" and give it a quantity of 250 square feet (SF). Then add line items to the folder for flooring and ceiling tiles, linking their quantities to the quantity of the parent folder. If the size of the room changes during the design process, you only need to change the quantity on the folder, and the line items will change automatically.

CostLink/AE also supports dynamic linking to Microsoft Excel. Create a space program or building parameters model and link cells directly to CostLink/AE quantities. Once linked, quantities in CostLink/AE update as the space program and other parameters change.

Simple but Powerful Reports

Simple but powerful report formatting and presentation lets you choose and format your reports in a variety of ways. The report is organized by the folders you create for your estimate. The costs in each report can either include markups in the individual line items, or summarize markups at the end of the report – your choice. You can choose the level of summarization, include or exclude a "percent of total" column, unit cost column, quantity column, and the total cost column. You can specify a report title and footer, apply a company logo to the report, and choose whether to include notes in the report. (AE lets you annotate any or every line of your cost estimate.) Reports can then be printed or exported to a number of formats including PDF, Excel, and Word.

Foundations of CostLink/AE

CostLink/AE is mature. AE is solidly founded on the CostLink/CM framework, which has been tested and improved through three generations of release. BSD has big plans for CostLink/AE as the new vanguard of its cost estimating product line. We know you will be pleased, both with the initial release and the ongoing subscription updates that hallmark our other successful products. We look forward to your productive use of CostLink/AE, and as always, we welcome your feedback.

About the RS Means Cost Data

Your subscription to BSD CostLink/AE includes the current RS Means cost data in the AE Assemblies database and the Building Construction Cost Data database. The following is how RS Means explains what is behind their costs.

The Development of Cost Data

The staff at RS Means continuously monitors developments in the construction industry in order to ensure reliable, thorough, and up-to-date cost information. While overall construction costs may vary relative to general economic conditions, price fluctuations within the industry are dependent upon many factors. Individual price variations may, in fact, be opposite to overall economic trends. Therefore, costs are continually monitored and complete updates are published yearly. Also, new items are frequently added in response to changes in materials and methods.

Costs - $ (U.S.)

All costs represent U.S. national averages and are given in U.S. dollars. The Means City Cost Indexes (Location Adjustment) should be used to adjust costs to a particular location. The City Cost Indexes for Canada can be used to adjust U.S. national averages to local costs in Canadian dollars. No exchange rate conversion is necessary.

For information on applying Location Adjustments, see chapter 4.

Model Costs

The base building cost for each of the model buildings is computed from a small number of variables, including total area, perimeter, number of floors, and exterior wall and framing systems. Each of these variables is linked by formulas to assemblies and line items that are added to compute the total base building cost. A number of optional additives are provided for each building model, allowing the user to select appropriate added items and insert required quantities. Each model is based on specific parameters that cannot be varied significantly without invalidating the resulting cost estimate. For example, a building model of two stories cannot be used for a cost estimate of a similar building type of five stories, since many of the systems used and some of the computations would be inappropriate for the taller building.

Material Costs

The RS Means staff contacts manufacturers, dealers, distributors, and contractors all across the U.S. and Canada to determine national average material costs. Included within material costs are fasteners for a normal installation. RS Means engineers use manufacturers' recommendations, written specifications and/or standard construction practice for size and spacing of fasteners. Adjustments to costs may be required for your specific application or location. Material costs do not include sales tax, but can be adjusted in the Cost Tab of the Summary Info in CostLink/AE as described in chapter 4.

Labor Costs

Labor costs are based on the average of wage rates from 30 major U.S. cities. Rates are determined from labor union agreements or prevailing wages for construction trades for the current year. Rates, along with overhead and profit markups, are listed on the inside back cover of the appropriate RS Means cost book. If rate increases are expected within a given year, costs should be adjusted accordingly.

Labor costs reflect productivity based on actual working conditions. These figures include time spent during a normal workday on tasks other than actual installation, such as material receiving and handling, mobilization at site, site movement, breaks, and cleanup. Productivity data is developed over an extended period so as not to be influenced by abnormal variations and reflects a typical average.

Equipment Costs

Equipment costs include not only rental, but also operating costs for equipment under normal use. The operating costs include parts and labor for routine servicing such as repair and replacement of pumps, filters, and worn lines. Normal operating expendables such as fuel, lubricants, tires, and electricity (where applicable) are also included. Extraordinary operating expendables with highly variable wear patterns such as diamond bits and blades are excluded. These costs are included under materials. Equipment rental rates are obtained from industry sources throughout North America—contractors, suppliers, dealers, manufacturers, and distributors.

General Conditions

Prices given in this software include the Installing Contractor's overhead and profit (O&P). General Conditions, when applicable, should also be added to the Total Cost including O&P. The costs for General Conditions are listed in the Reference Section of the appropriate RS Means cost book. General Conditions for the Installing Contractor may range from 0% to 10% of the Total Cost including O&P. For the General or Prime Contractor costs for General Conditions may range from 5% to 15% of the Total Cost including O&P, with a figure of 10% as the most typical allowance.

Overhead and Profit

The costs in this software include O&P for the Installing Contractor. This figure is the arithmetic sum of Material (which is the bare material cost plus 10% for profit), Labor (the base labor cost plus total overhead and profit), and Equipment (the bare equipment cost plus 10% for profit). Details for the calculation of Overhead and Profit on labor are shown on the back cover of the appropriate RS Means cost book.

Factors Affecting Costs

Costs can vary depending upon a number of variables. Here is how RS Means has handled the main factors affecting costs.

Quality

The prices for materials and the workmanship upon which productivity is based represent sound construction work. They are also in line with U.S. government specifications.

Overtime

RS Means has made no allowance for overtime. If you anticipate premium time or work beyond normal working hours, be sure to make an appropriate adjustment to your costs.

Productivity

The productivities used in calculating labor costs are based on working an eight-hour day in daylight hours in moderate temperatures. For work that extends beyond normal work hours or is performed under adverse conditions, productivity may decrease.

Size of Project

The size, scope of work, and type of construction project will have a significant impact on cost. Economies of scale can reduce costs for large projects. Costs can often run higher for small projects. Costs in this database are intended to represent costs for commercial and industrial projects costing $1,000,000 and up, or large multi-family projects. Costs for projects of a significantly different size or type should be adjusted accordingly.

Location

Material prices are for metropolitan areas. However, in dense urban areas, traffic and site storage limitations may increase costs. Beyond a 20-mile radius of large cities, extra trucking or transportation charges may also increase the material costs slightly. On the other hand, lower wage rates may be in effect. Be sure to consider both of these factors when preparing an estimate, particularly if the job site is located in a central city or remote rural location. In addition, highly specialized subcontract items may require travel and per diem expenses for mechanics.

For information on applying location adjustments, see chapter 4.

Other factors:

- season of year
- contractor management
- weather conditions
- local union restrictions
- building code requirements
- availability of:
  - adequate energy
  - skilled labor
  - building materials
- owner's special requirements/restrictions
- safety requirements
- environmental considerations

Unpredictable Factors

General business conditions influence "in-place" costs of all items. Substitute materials and construction methods may have to be employed. These may affect the installed cost and/or life cycle costs. Such factors may be difficult to evaluate and cannot necessarily be predicted based on the job's location in a particular section of the country. Thus, where these factors apply, you may find significant, but unavoidable cost variations for which you will have to apply a measure of judgment to your estimate.

Contingencies

Estimates that include an allowance for contingencies have a margin to allow for unforeseen construction difficulties. On alterations or repair jobs, 20% is not an unreasonable allowance to make. If drawings are final and only field contingencies are being considered, 2% to 3% is probably sufficient, and often nothing need be added. As far as the contract is concerned, future changes in plans can be covered by extras.

The contractor should consider inflationary price trends and possible material shortages during the course of the job. Escalation factors are dependent upon both economic conditions and the anticipated time between the estimate and actual construction. If drawings are not complete or approved, or if a budget is required before proceeding with a project, it is wise to add 5% to 10%. Contingencies are a matter of judgment.

Final Checklist

Estimating can be a straightforward process provided you remember the basics. Here is a checklist of some of the items you should remember to do before completing your estimate.

Did you remember to . . .

- factor in the City Cost Index (Location Adjustment) for your locale
- take into consideration which items have been marked up and by how much
- mark up the entire estimate sufficiently for your purposes
- read the background information on techniques and technical matters that could impact your project time span and cost
- include all components of your project in the final estimate
- double check your figures to be sure of your accuracy
- call RS Means if you have any questions about your estimate or the data you've found in our publications

Remember, RS Means stands behind its publications. If you have any questions about your estimate . . . about the costs you've used from their data . . . or even about the technical aspects of the job that may affect your estimate, feel free to call the RS Means editors at 1-800-334-3509.

Assemblies Estimating

BSD CostLink/AE is designed for Assemblies Estimating. The following information about Assemblies Estimating is provided by RS Means.

What Is Assemblies or Systems Estimating?

The grouping of several different trades into building components or broad building elements is the "Systems" or "Assemblies" method of estimating. This method allows the estimator or designer to make quick comparisons of systems in various combinations within predetermined guidelines. Systems, which are best suited to accommodate budget, code, load, insulation, fireproofing, acoustics, energy considerations, and the owner's special requirements can quickly be determined. This method can also be used to help match existing construction.

Systems Estimates vs. Unit Price Estimates

In order to understand how a Systems estimate is assembled, it is a good idea to compare a Unit Price estimate with a System estimate. In a Unit Price estimate, each item is normally included along the guidelines of the 50 division MasterFormat of the Construction Specifications Institute, Inc. In a Systems estimate, these same items are allocated to one of seven major group elements in the UNIFORMAT II organization of a Systems estimate. Certain items that were formerly grouped into a single trade breakdown must now be allocated among two or more systems.

An example of this difference would be concrete. In a Unit Price estimate, all the concrete items on a job would be priced in the Concrete section of the estimate, CSI Division 3. In a Systems estimate, concrete is found in a number of locations. For instance, concrete is used in all of these systems: Division A10, Foundations; Division A20, Basement Construction; Division B10, Superstructure, and Division B20, Exterior Closure.

Conversely, other items that are listed in separate trade breakdowns in a Unit Price estimate are combined into one division in the Systems estimate. For example, interior partitions might include two CSI divisions: Division 6, Wood Stud Wall; and Division 9, Lath, Plaster and Paint. In the UNIFORMAT II Systems Estimate, these items are all combined in Division C, Interior Construction.

This re-allocation of the familiar items from the CSI format may at first seem confusing, but once the concept is understood, the resultant increase in estimating speed is well worth the initial familiarization required.

When Systems or Assemblies Estimating Is Appropriate

Systems or Assemblies estimating is not a substitute for Unit Price estimating. It is normally done during the earlier conceptual stage before plans have been completed or when preparing a budget. This enables the designer to bring in the project within the owner's budget.

During the actual initial design process, the designer will be forced to make important decisions and “trade-offs” for each of the various systems. Some of the trade-offs can include:

a. Price of each system
b. Appearance, quality and compatibility
c. Story height
d. Clear span
e. Complications and restrictions
f. Thermal characteristics
g. Life cycle costs
h. Acoustical characteristics
i. Fireproofing characteristics
j. Special owner’s requirements in excess of code requirements
k. Code
l. Load

Gathering Information for a Systems Estimate

Before starting a Systems Estimate, gather all the information possible pertaining to the project. Information can be gathered from:

1. Code Requirements
2. Owner's Requirements
3. Preliminary Assumptions
4. Site Inspection and Investigation

Since the Foundation and Substructure design and price is a function of the Superstructure and the site, it is advisable to start the estimate with the Superstructure. Follow this with the Foundation and Substructure, and then the other Systems in the sequence as applicable to your project.

Tutorial

This chapter contains a tutorial that will walk you through creating a small estimate in CostLink/AE. Where helpful, references to later chapters in this manual are made so that you can look up information that is more detailed.

Tasks you will perform include:

- Creating a project using one of the RS Means building models
- Creating another project, copying costs from the RS Means Assemblies and Line Items databases
- Adding assemblies and line items to your estimate
- Adding folders
- Creating a new line item in your estimate
- Copying costs from another estimate
- Applying markups
- Printing reports

NOTE: For installation instructions, directions for moving the software, and system requirements information, see the Installation document available in the Download Center at www.bsdsoftlink.com.

Creating an Estimate Using a Model

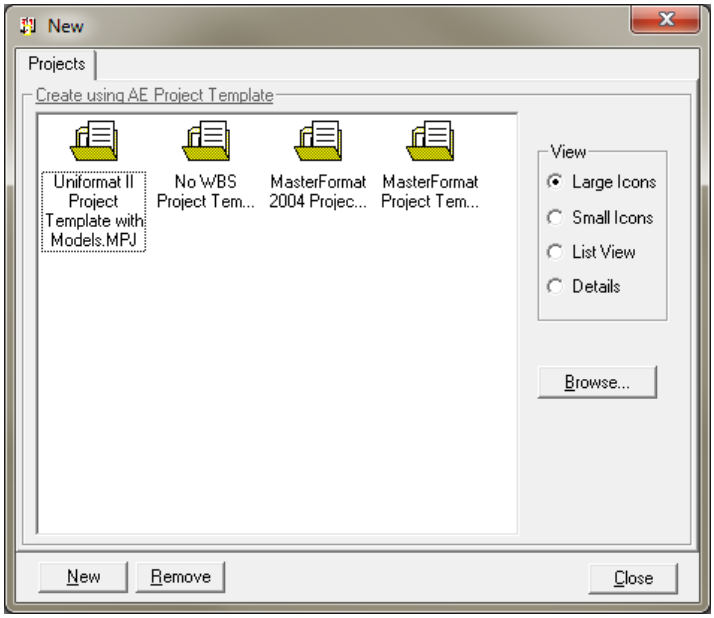
To create the estimate, open CostLink/AE - from the Windows Start menu, choose Programs, then BSD SoftLink Products, then CostLink AE. An empty CostLink/AE screen opens. Do not open any projects.

Create the Model Project File

To create a model estimate in CostLink/AE, you create a new project using the following steps.

1. Choose File > New Project, or click the Create New Project toolbar button .

   The New dialog box opens, showing the available project templates.

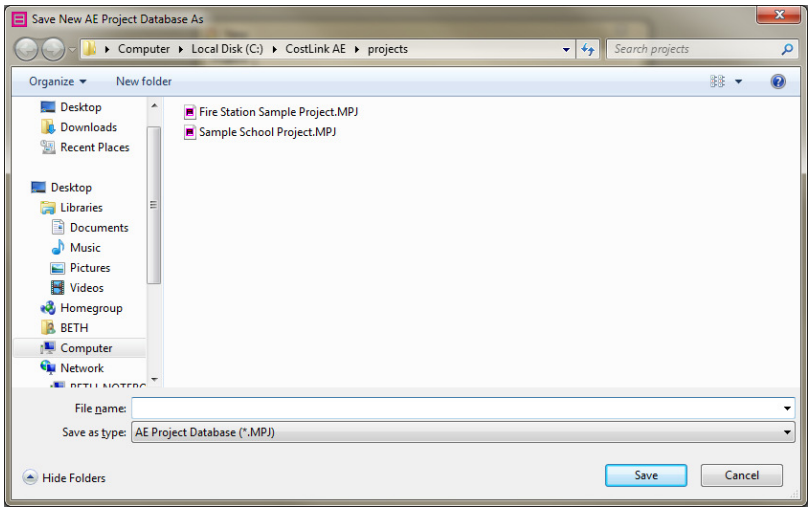


New dialog box

For more information on creating new projects and choosing templates, see chapter 4.

2. Click the template called Uniformat II Project Template with Models.mpj, and then click the New button.

   The *Save New AE Project Database As* dialog box opens.



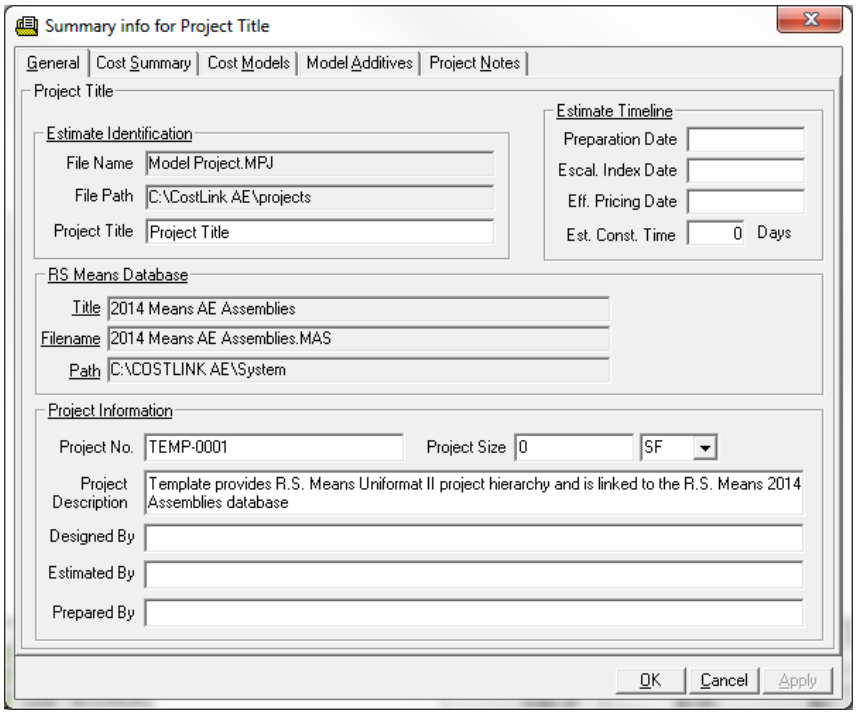
Save New AE Project Database As dialog box

3. In the File name field, type `Model Project`.

NOTE: For later estimates you can use the *Save in* drop-down box to save your project in any folder on your computer or network.

4. Click Save.

   BSD CostLink/AE creates the new Project Database using the template. When the Save operation is finished, the *Summary Info* dialog box opens.



Summary Info dialog box

The General tab is used to display and edit general information about the estimate.

For more information on the Summary Info dialog box, see chapter 4.

5. In the Project Title field type `Model Project`.

   The Project Title can be different from the File Name. The Project Title prints in the reports, whereas the File Name does not.

6. Using the Tab key to go from field to field, fill in the following fields:

Preparation Date:	`(Today's Date)`
Escalation Index Date:	`1/1/2014`
Effective Pricing Date	`1/1/2014`
Estimated Construction Time	`240 Days`
Project No.	`2014-5-10`
Project Size and UOM	`11000 SF`
Project Description:	`Fire Station Model`
Designed By:	`Architect's Name`
Estimated By:	`Your Name`

Prepared By: Consulting Firm Name and Location

Leave the Summary Info dialog box open for the next exercise.

Creating the Model Estimate

You use the Cost Models tab of the *Summary Info* dialog box to choose the model and enter key parameters about the building.

1. Click the Cost Models tab.

   BSD CostLink/AE displays the tab.

2. Under Cost Models, click the button for *Commercial*. Then, from the drop-down list, select Fire Station, 2 Story.

3. The building size has been automatically filled in from the information you entered on the General tab, although you can also enter or edit the area here. For the Building Perimeter, type in 310.

NOTE: The model building parameters are listed at the bottom of the Cost Models tab. If the building being designed differs drastically from the parameters listed, the cost estimate is unlikely to be highly accurate.

4. Select exterior closure and framing assemblies by clicking on the arrow for the pull-down list and choosing Decorative Concrete Block / Steel Joists.

5. Review other model building parameters at the bottom of this tab. Note that several of these parameters may be adjusted, but RS Means strongly suggests that these not be modified, because significant alterations may invalidate the cost estimate results. For example, changing the number of floors from 2 to 3 could change the model results in unpredictable ways.

Model Additives

Next, you use the Model Additives tab of the *Summary Info* dialog box to select additional cost items for this Cost Model.

1. Click the Model Additives tab.

2. Select appropriate additives for this project by inputting a quantity in the quantity field. For example, you may want to add kitchen appliances, clothes lockers, and an elevator. Note that the cost for each additive is automatically computed.

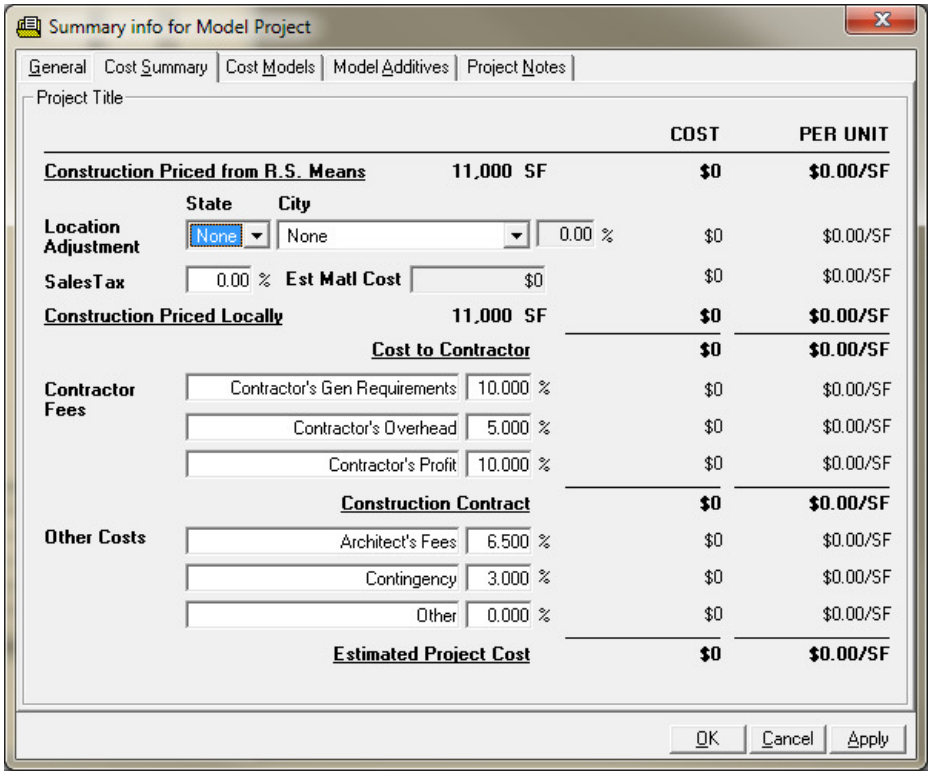
Applying Cost Markups and Adjustments

Markups are the estimated costs beyond the direct costs. The direct costs copied from the R.S. Means Assemblies and Unit Prices resource windows already include overhead and profit for the installing contractor. All other markups including Location Adjustments, Sales Tax, and Prime Contractor markups are applied on the Cost Summary tab of the Summary Info dialog box. ***For more information*** on markups, see Chapter 4.

In the following exercise, you will apply a location adjustment and additional markups to the Model Project:

1. Click the Cost Summary tab.

   The Cost Summary displays with markup percentages that have been copied from the template and extended costs that have been computed by the model.



Summary Info dialog box, Cost Summary tab for Model project

2. Next to the *State* field, click the pull down arrow and choose PA for Pennsylvania.

NOTE: Instead of scrolling through entire list of states, after clicking the pull down arrow, type the first letter of the state or province. The list will scroll to the first state or province with that letter.

The City field updates to list cities in Pennsylvania.

3. To the right of the *City* field, click the pull down arrow and choose Pittsburgh.

   Using the RS Means Location Adjustment factors, the software calculates a location adjustment for that location and will adjust all of the RS Means costs by that percentage.

4. Click in the percent field for *Sales Tax*. Change the sales tax to 7.00%.
5. Change the Architect's Fees to 8%, in accordance with the suggested architectural fees on the Cost Models tab.
6. Click in the percent field for *Contingency*, enter 4.0, and press Tab to change the Contingency to 4.0%.
7. Click the Apply button.

   The project costs are recalculated and the Cost Summary tab updates.

8. Click OK to close the Summary Info dialog box.

   The costs in the Sheet panel update to show the building costs with the adjusted markups.

9. Click on the Tree menu, and then click on *Show Data in Tree* to add a cost breakdown view to the Tree panel.
10. Right click on the Fire Station Folder and choose *Expand Branch* to fully expand the folders for an overall view the building project costs. You can also click on Preview to take a look at the completed cost estimate report.
11. For a more detailed look at any folder, click on the folder in the tree, then double click on any of the assemblies that show up in the sheet panel below. For example, click on Standard Foundations and double click on the Strip Footings assembly in the sheet panel to open the Tasks form for that assembly. You can stretch the Tasks form to see all of the Assembly members. In this case, note that the single assembly includes ten separate tasks.
12. Unlike other "square foot" cost estimating systems based on historical data or simple relationships, BSD CostLink/AE provides a fully detailed model-driven cost estimate that can be modified and updated all the way through the Construction Documents phase of the project. See the next section for instructions on modifying your model estimate by copying assemblies and line items from the RS Means databases included with BSD CostLink/AE.

Creating an Estimate Without Using a Cost Model and Modifying Estimates of All Types

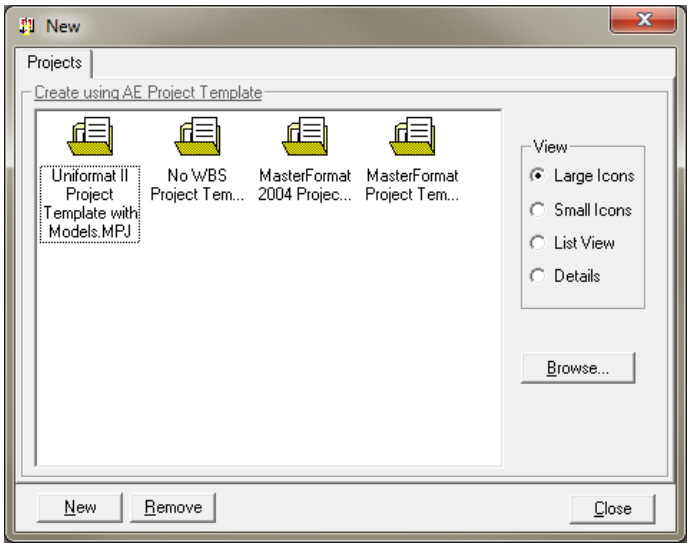
Create the Sample Project File

To create an estimate in CostLink/AE without using a model, create a new project using the following steps.

1. Close any open projects.

Choose File > New Project, or click the Create New Project toolbar button .

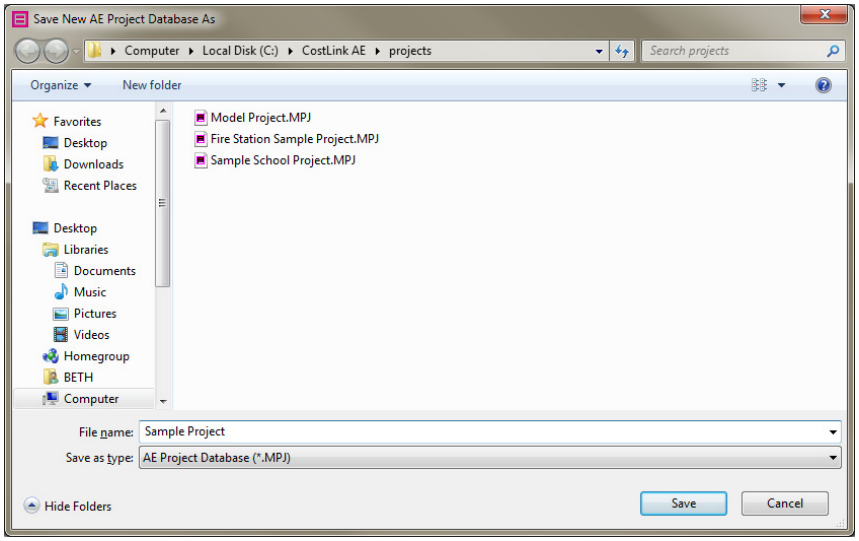
2. The New dialog box opens, showing the available project templates.



New dialog box

3. Click the template called Uniformat II Project Template with Models.mpj, and then click the New button (or double click on the template).

   The *Save New AE Project Database As* dialog box opens.



Save New AE Project Database As dialog box

4. In the File name field, type `Sample Project`.
5. Click Save.
6. Complete the General tab and the Cost Summary Tab using your own location.
7. Input 18,555 as the Project Size.

Adding Project Notes

You use the Project Notes tab of the Summary Info dialog box to add any global descriptive notes for the estimate. Notes on specific folders or tasks can be added either here or within the estimate. You can also update the notes at different phases of the project as you save different versions of the estimate. If you choose to print them, Project Notes print after the Title Page in the reports.

1. In the Summary Info dialog box, click the Project Notes tab.

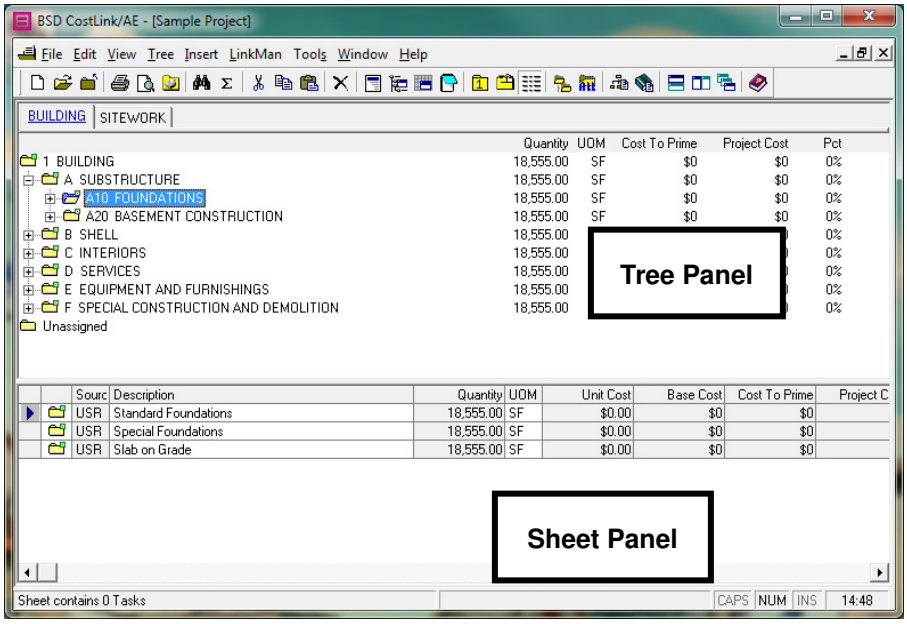
   BSD CostLink/AE displays the tab.

2. Click in the Notes area and enter the following: `Sample Project Notes`.

NOTE: In addition to typing notes directly into the Notes area, you can copy text from a word processor, or copy notes from the Notes tab of a different CostLink/AE project. CostLink/AE does not have spell check, so you may want to copy text to your word processor and use your word processor's spell check. To copy the text, drag across it with your mouse and press Ctrl+C on your keyboard. Then click in the Notes area and press Ctrl+V on your keyboard to paste.

3. Click OK to save all of your changes and close the Summary Info dialog box.

   Your Project window should look similar to the following picture. The Tree Panel is the top half of the screen where the folders are shown. The bottom half of the screen is the Sheet Panel. The Sheet Panel displays the contents of the folder you click on in the Tree Panel.


BSD CostLink/AE - [Sample Project]
File Edit View Tree Insert LinkMan Tools Window Help
BUILDING SITEWORK
Quantity UOM Cost To Prime Project Cost Pct
1 BUILDING 18,555.00 SF $0 $0 0%
A SUBSTRUCTURE 18,555.00 SF $0 $0 0%
A10 FOUNDATIONS 18,555.00 SF $0 $0 0%
A20 BASEMENT CONSTRUCTION 18,555.00 SF $0 $0 0%
B SHELL 18,555.00 0%
C INTERIORS 18,555.00 0%
D SERVICES 18,555.00 0%
E EQUIPMENT AND FURNISHINGS 18,555.00 0%
F SPECIAL CONSTRUCTION AND DEMOLITION 18,555.00 0%
Unassigned
Tree Panel
Sourc Description Quantity UOM Unit Cost Base Cost Cost To Prime Project C
USR Standard Foundations 18,555.00 SF $0.00 $0 $0
USR Special Foundations 18,555.00 SF $0.00 $0 $0
USR Slab on Grade 18,555.00 SF $0.00 $0 $0
Sheet Panel
Sheet contains 0 Tasks
CAPS NUM INS 14:48

Sample Project window with Tree and Sheet Panels labeled

Adding Folders

The folders in the Tree panel represent the cost breakdown. The folders will print in the reports, summarizing the costs at each folder. Most of the folders needed for this estimate were copied from the Uniformat II template. However, not all the needed folders are there. In the following steps, you will add two new folders to the Tree panel.

For more information on adding folders, see chapter 4.

1. In the Sample Project window, **right-click** on the *Substructure* folder in the Tree Panel. From the context menu, choose *Expand Branch.*

NOTE: If you do not see a *Substructure* folder, from the Tree menu choose *Use Single Tab*. Then perform step 1.

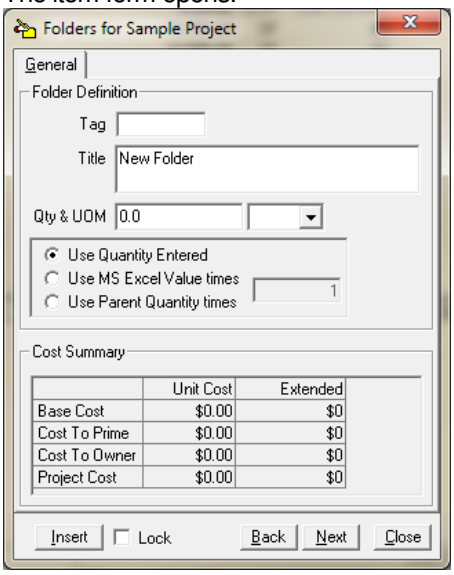
The Substructure folder expands to show all its subfolders.

2. Click on the folder *Standard Foundations*.
3. With Standard Foundations highlighted, from the Insert menu choose *Child Folder*.

   A new folder appears below Standard Foundations. You could type a name for the folder in the Tree Panel. Instead, use the next step to open the folder's item form.

4. From the View menu, choose *Tree Items Form*, or click the button on the toolbar .

   The item form opens.



Item form for New Folder

5. Using tab to move from field to field, enter the following information:

   Tag: `1`
   Title `Strip Footings`

6. Leaving the item form open, click on the Standard Foundations folder.

> **NOTE:** If you cannot see the Standard Foundations folder, move the folder form by dragging the title bar (the bar across the top of the form that shows the name of the form) with your mouse. To *drag* the form instead of *resizing*, the mouse pointer should be a white arrow, not a double-headed arrow.

   The item form displays the information for the Standard Foundations folder.

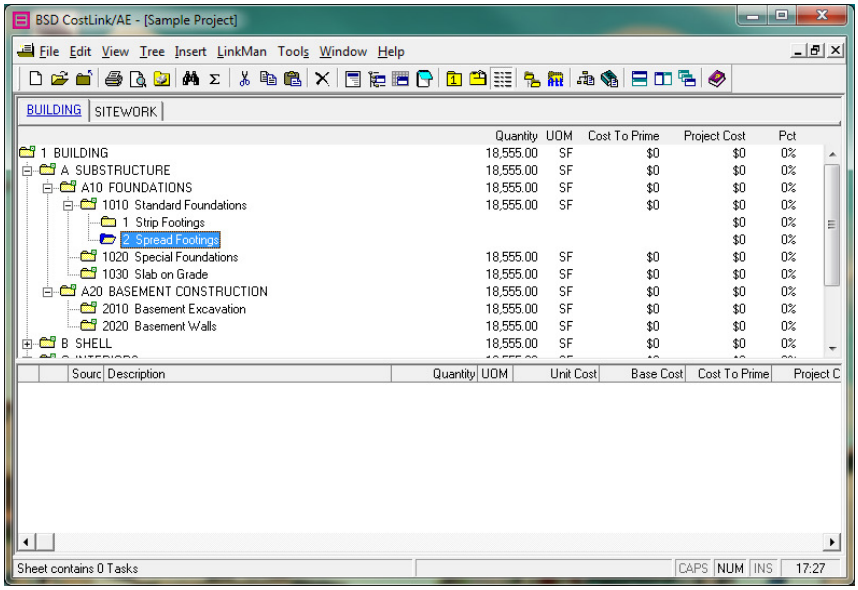
7. From the Insert menu, choose *Child Folder*.

A new folder appears in the Tree panel after the Strip Footings folder, and the item form displays the information for the New Folder.

8. Fill in the following information:

   Tag: `2`
   Title `Spread Footings`

9. Close the Form by clicking on the Close button.


BSD CostLink/AE - [Sample Project]
File Edit View Tree Insert LinkMan Tools Window Help
BUILDING SITEWORK
Quantity UOM Cost To Prime Project Cost Pct
1 BUILDING 18,555.00 SF $0 $0 0%
A SUBSTRUCTURE 18,555.00 SF $0 $0 0%
A10 FOUNDATIONS 18,555.00 SF $0 $0 0%
1010 Standard Foundations 18,555.00 SF $0 $0 0%
1 Strip Footings $0 0%
2 Spread Footings $0 0%
1020 Special Foundations 18,555.00 SF $0 $0 0%
1030 Slab on Grade 18,555.00 SF $0 $0 0%
A20 BASEMENT CONSTRUCTION 18,555.00 SF $0 $0 0%
2010 Basement Excavation 18,555.00 SF $0 $0 0%
2020 Basement Walls 18,555.00 SF $0 $0 0%
B SHELL 18,555.00 SF $0 $0 0%
Sourc Description Quantity UOM Unit Cost Base Cost Cost To Prime Project C
Sheet contains 0 Tasks
CAPS NUM INS 17:27

Sample Project with two new folders added under Standard Foundations

Adding Costs

There are five methods of adding tasks and their associated Direct Costs to an estimate in BSD CostLink/AE:

- Begin with a model, which automatically includes multiple assemblies and line items.
- Copy assemblies from the Assemblies resource window.
- Copy individual line items from the Unit Prices resource window.
- Create your own line items and enter the costs directly.
- Copy costs from one project to another.

The Assemblies resource window contains assemblies, which are groupings of line items that are defined in the estimate as individual tasks. The Unit Prices resource window contains line items. The assemblies and line items are from RS Means.

For more information on the RS Means cost data, see chapter 1.

NOTE: The RS Means models included in CostLink/AE generally include all the assemblies and line items required for the base building. The quantities required for all these cost items are driven by a small number of parameters, such as the total square footage and the number of floors.

For more information on Models, see chapter 4.

In the following steps you will open the Assemblies resource window, use Find to locate a particular assembly, and use drag and drop to copy the assembly to your project:

NOTE: Assemblies contain all the line items required to perform a particular piece of the job. For example, an assembly representing 6-inch concrete slab on grade includes all the tasks required to prepare for, form, pour, and finish the slab. The assembly unit of measure is square feet. The Assemblies resource window stores the unit costs (Labor, Equipment, Material, and Total) and quantities of each task required to construct one square foot of 6-inch slab.

After copying the assembly into the Project, enter the quantity of square feet of slab needed for the estimate. CostLink/AE then computes the total quantities and resulting costs of all items required for slab on grade construction.

For more information on Assemblies, see chapter 4.

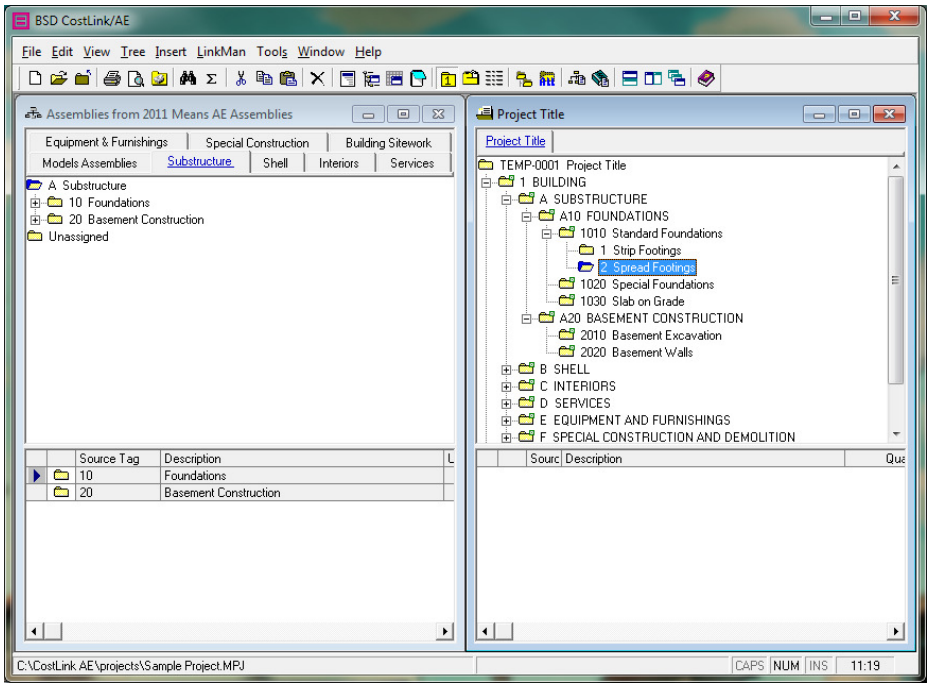
1. Click the *Open Assemblies resource window* button on the toolbar .

   The Assemblies resource window opens in a separate database window within BSD CostLink/AE.

2. Click the *Tile windows vertically* button on the toolbar .

   The Project and Assemblies resource windows appear side-by-side. It is easier to copy assemblies if the windows are positioned side-by-side.

NOTE: If you are still displaying the cost data in the project Tree Panel, the numbers may overwrite the folder names in your project. To change this, click on the title bar of your project window, click on the Tree menu and then Show Data in Tree to hide the cost data in the tree.



Assemblies resource window and Sample Project tiled side-by-side

For more information on managing multiple windows, see chapter 4.

NOTE: When you have more than one window open, the window with the more brightly colored title bar (

) is the *active* window. When you choose commands from the menus or toolbars such as *Show Folder Tags*, folder tags will toggle on or off in the *active* window. In step 3 below, make sure the Assemblies window is active before choosing the command. To make a window active, click anywhere in the window or on the window's title bar.

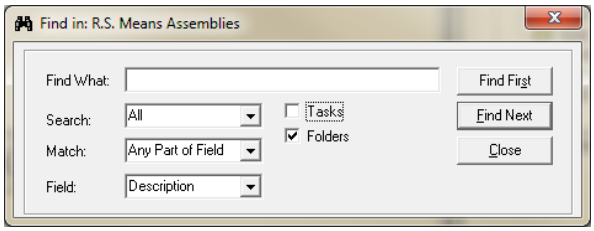
3. With the Assemblies resource window active (its title bar is more brightly colored than that of the Sample Project), from the Tree menu, choose *Show Folder Tags*, or click the button on the toolbar .

   The folder tags are the numbers and letters displaying between the folder icons and the folder names in the Assemblies resource window. If you are familiar with Uniformat II, you may find it easier to navigate with the folder tags turned on.

NOTE: *Show Folder Tags* is a toggle. Click it again to turn the folder tags off, and again to turn them back on. For this tutorial, leave the folder tags on.

4. From the Edit menu, choose *Find*, or click the button on the toolbar .

   The Find dialog box opens.



Find dialog box

You will use the Find dialog box to search the Assemblies resource window for Strip Footings to add under Standard Foundations.

5. Type `strip footings` in the Find What field.
6. Make sure the following default selections are set:

Search	`All`	Tasks	`Not selected`
Match	`Any Part of Field`	Folders	`Selected`
Field	`Description`		

NOTE: You will usually have better results if you search for Folders rather than Tasks. Tasks have many more abbreviations than folders. ***For information*** on the RS Means abbreviations, see Appendix B.

7. Click the *Find First* button or press *Enter* on your keyboard.

   CostLink/AE searches the Assemblies resource window from the beginning. The first folder containing *strip footings* in its Description field is selected in the Tree panel. This folder should be *110 Strip Footings*.

NOTE: Find searches for exactly the characters you type, but it is not case sensitive. If the database you are searching does not spell the word the same way as you typed it in the Find dialog box, Find will not locate the item.

8. Click *Close* to close the Find dialog box.

   Note that there are many assemblies in the Sheet panel.

9. In the Sheet panel of the Assemblies resource window, scroll to locate the assembly with the following description:

Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide

10. Drag the assembly to the Strip Footings folder in the Sample Project.

NOTE: To drag the assembly, hold your mouse pointer over any part of the assembly in the Sheet panel. Click and hold the left mouse button while you move your mouse to the Strip Footings folder in your project. Between the Sheet panel and the folder, the mouse pointer becomes a circle/bar symbol. When the Strip Footings folder is highlighted, the mouse pointer becomes a hand with a sheet of paper symbol. Release the mouse button to drop the task on the folder.

Click OK if BSD CostLink/AE prompts you to confirm copying the task.

11. In the Sample Project click on the Strip Footings folder.

    The copied assembly is in the Sheet panel.

12. In the Quantity field for the copied assembly in the Sheet Panel, type `580`, and then press Tab.

NOTE: If necessary, scroll the Sheet panel to the right to see the Quantity field. You can also make the Description column smaller by holding your mouse over the line between the Description and Quantity column headings so that your mouse pointer becomes a double-headed arrow. Then click and hold while you drag the line to the left.

Scroll to the right in the Sheet panel to see that the cost fields updated.

13. Click the title bar of the Assemblies resource window to make it the active window.

NOTE: If you do not make the Assemblies resource window active, then in the next step when you open the Find dialog box, Find will be searching the Sample Project window instead of the Assemblies resource window.

14. Referring to steps 4-7 above as necessary, use Find to locate the folder *Spread Footings*, which contains the assembly with the following description:

    spread footings, 3000 PSI concrete, load 50K, soil bearing capacity 3 KSF, 4' - 6" square x 12" deep

NOTE: You will probably need to scroll to the left in the Assemblies resource window Sheet panel to see the name of the assembly. Drag assemblies with the ***right*** mouse button instead of the left, or drag from the gray box to the left of the assembly in the Sheet panel so that the Sheet panel will not scroll.

15. Referring to step 9 above, drag the assembly to the Spread Footings folder in your project.
16. Referring to steps 10-11 above, enter a quantity of `20` for the Spread ftgs assembly.
17. In the Assemblies resource window, find the assembly with the following description (it should be in the same folder as the last assembly you copied):

spread footings, 3000 PSI concrete, load 50K, soil bearing capacity 6 KSF, 3' - 0" square x 12" deep

18. Drag the assembly to the Spread Footings folder in the Sample Project.
19. Enter a quantity of `35` for the assembly.

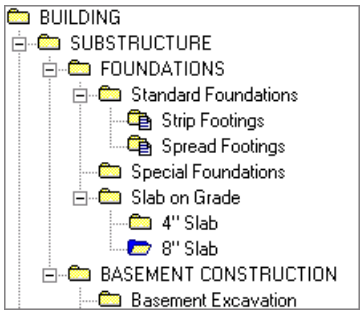
Reviewing Adding Folders and Copying Assemblies

The following exercise contains less step-by-step directions than the previous exercises. As necessary, refer to the exercises on Adding Folders and Copying Assemblies to create the following folders and copy the Assemblies to them.

1. Click on the Slab on Grade folder in the Tree panel.
2. Add the following folders as subfolders of Slab on Grade (make sure you click on the Slab on Grade folder before choosing Insert > Child Folder for each folder):

	Tag	Title
	1	4″ Slab
	2	8″ Slab

When done, your Tree Panel should look similar to the following picture.



Sample Project with new folders under Slab on Grade

NOTE: If you add a folder in the wrong location, move the folder to the correct location by dragging it with your ***right*** mouse button (not the left) to the folder that it should be before. Then choose Move Above Folder from the context menu.

3. Locate the following assembly in the Assemblies resource window, drag it to the 4” slab folder, and enter the quantity.

Slab on grade, 4" thick, industrial, reinforced 14,755 SF

4. Locate the following assembly in the Assemblies resource window, drag it to the 8” slab folder, and enter the quantity.

Slab on grade, 8" thick, heavy industrial, reinforced 3,400 SF

Adding User-Defined Costs

If cost items you need are not included in the resource windows, add your own. To create user-defined tasks, in the Tree Panel of your project, click on the folder that the task belongs in. Then from the Insert menu choose *Task*. Enter the description, quantity, unit of measure, and unit cost in the sheet panel or in the item form.

In the following exercise, you will add an additional cost to the 8” Slab folder:

1. With *8” Slab* highlighted in the Tree panel, from the Insert menu choose *Task*.

   A task called *New Item* appears in the Sheet panel.

2. Click once on the Description (*New Item*) so that the words are highlighted and then type the new description below. Click in each of the following fields in the same manner to enter the following information. The Unit Cost field will display *$10.00* after you enter the `10` and press Tab.

	Description	Quantity	UOM	Unit Cost
	`Add for Turndown`	`240`	`LF`	`10`

NOTE: You can also open the item form for the new task by double-clicking on it, to enter the information there. The difference is that you can use the Tab key to move from field to field in the item form (instead of having to click in each field before typing). ***For more information*** on user-defined tasks, see chapter 4.

Adding Line Items from the Unit Prices Resource Window

If you do not find an assembly to suit your needs, you can search the Line Items in the Unit Prices resource window. The Line Items are from RS Means and are categorized in the 50 Division CSI 2004/12 MasterFormat. ***For more information*** on the supplied RS Means data, see chapter 1.

In the following exercise, you will copy several line items from the Unit Prices resource window to the Sample Project, adding new folders as necessary:

1. Close the Assemblies resource window by clicking the Windows close button on the Assemblies window title bar.
2. Use Find to locate the *Floor Construction* folder in the Sample Project.
3. Click the *Open Unit Prices resource window* button on the toolbar.

   The Line Items from the Means AE Assemblies resource window opens in a separate window within CostLink/AE.
4. Click the *Tile Windows Vertically* button on the toolbar.

   The Line Items resource window displays side-by-side with your project.
5. In the Line Items resource window, use Find to locate the following line item:

Column, structural tubing, heavy section, 7" to 10" W, incl shop primer, cap & base plate, bolts

HINT: *Search for* `Columns`*. The first folder located will not be the correct folder. Click* Find Next *to locate the next folder. Continue to click on* Find Next *until you find the correct folder.*

6. Drag the line item to *Floor Construction* in your project and enter a quantity of `8600`.
7. Find the *Roof Construction* folder in your project.
8. In the Line Items window, find and copy the following line items () into the Roof Construction folder and input the following quantities:

Structural steel project, industrial buildings, steel bearing, 100-ton project, 1 story, A992 steel, shop fabricated, incl shop primer, bolted connections **41.6 TON**

HINT: *Search for* `Steel Projects`*. The folder has 56 tasks in it. Instead of looking through the folder task by task, you can use Find to search within the folder. To search within the folder, in the Sheet panel, click on the first task in the folder (this is just so CostLink/AE's focus is in the Sheet panel, not the Tree). Then open Find again, deselect Folders, and select Tasks. Search for* `Industrial`*. Use Find Next (not Find First). Keep clicking Find Next until you locate the correct item.*

Open web bar joist, 40-ton job lots, spans up to 30', K series, shop fabricated, incl shop primer, horizontal bridging, average **4.3 TON**

HINT: *Search for* `Web Joists`*. Make sure you deselect Tasks and re-select Folders.*

Metal decking, steel, open type, wide rib, galvanized, under 50 Sq, 1-1/2" D, 20 ga **3,420 SF**

HINT: *Once you locate the Steel Decking folder, notice that it contains 3 subfolders. Look in the Steel Roof Decking folder for this task.*

Metal decking, steel, open type, wide rib, galvanized, 50 to 500 Sq, 1-1/2" D, 22 ga
15,481 SF

9. Use Insert > Task to add the following user-added line item to the same folder:

Description	Quantity	UOM	Unit Cost
Misc. Plates and Angles	7	TON	1300.00

Copying Costs From One Project To Another

If a previously created CostLink/AE estimate is similar to a new estimate you are creating, you can copy folders and tasks from the older project to the new project. In the following steps you will first remove the empty folders from the Sample Project, and then copy folders and tasks from the Fire Station Sample project that is installed with the software.

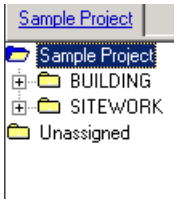
1. Close the Unit Prices resource window by clicking the Windows close button on the Unit Prices window's title bar.
2. From the Tools menu, choose *Delete Empty Folders*.

   A confirmation message opens asking if you want to delete the folders.
3. Click Yes.

   All empty folders, except those at Level One, are removed.

   Up to this point, the project has been displaying Level One folders on separate tabs: Building and Sitework. In the next step, you will display all folders on one tab.
4. From the Tree menu, choose *Use Single Tab*, or click the *Use single tab for table* button on the toolbar.

   There is now only one tab – Sample Project. BUILDING and SITEWORK are subfolders beneath the Sample Project folder.



Sample Project in single tab mode

NOTE: *Use Single Tab* is a toggle. Click it again to return to multi-tab mode, and again for single tab mode. Multi-tab mode can help when navigating complicated estimates. For the rest of this sample, remain in single tab mode.

The SITEWORK folder is empty. It was not deleted by the Delete Empty Folder command because it is a Level One folder.

5. Click on the SITEWORK folder and then click the *Delete Selected Item* button on the toolbar .

   A message opens asking you to confirm deleting the folder.

NOTE: Read confirmation messages when deleting to make sure CostLink/AE is deleting the correct item. You cannot Undo to restore an accidentally deleted folder or task.

6. Click Yes.

   The SITEWORK folder is deleted.

7. From the File menu, choose *Open*, and then choose *Open Project Database*.

   The Open Database dialog box opens.

8. Select and Open the Fire Station Sample Project.

   The Fire Station Sample project opens in its own database window.

9. If necessary, click the *Tile Windows Vertically* button on the toolbar .

10. In your project (the title bar says Sample Project or Project Title if you have not yet closed and reopened your project), click the plus sign next to BUILDING.

    The subfolders, SUBSTRUCTURE and SHELL, display.

11. Click the plus sign next to SHELL.

    The subfolder SUPERSTRUCTURE, completed in the previous exercises, displays.

12. In the Fire Station Sample Project, click the plus sign next to FIRE STATION.

    The subfolders display.

13. Click the plus sign next to SHELL.

    The subfolders display.

14. From the Fire Station Sample project, with your ***right*** mouse button, drag the EXTERIOR CLOSURE folder to the SHELL folder in your project (Sample Project).

    When you release the mouse button, a context menu opens.

15. From the context menu, choose *Copy All Here*.

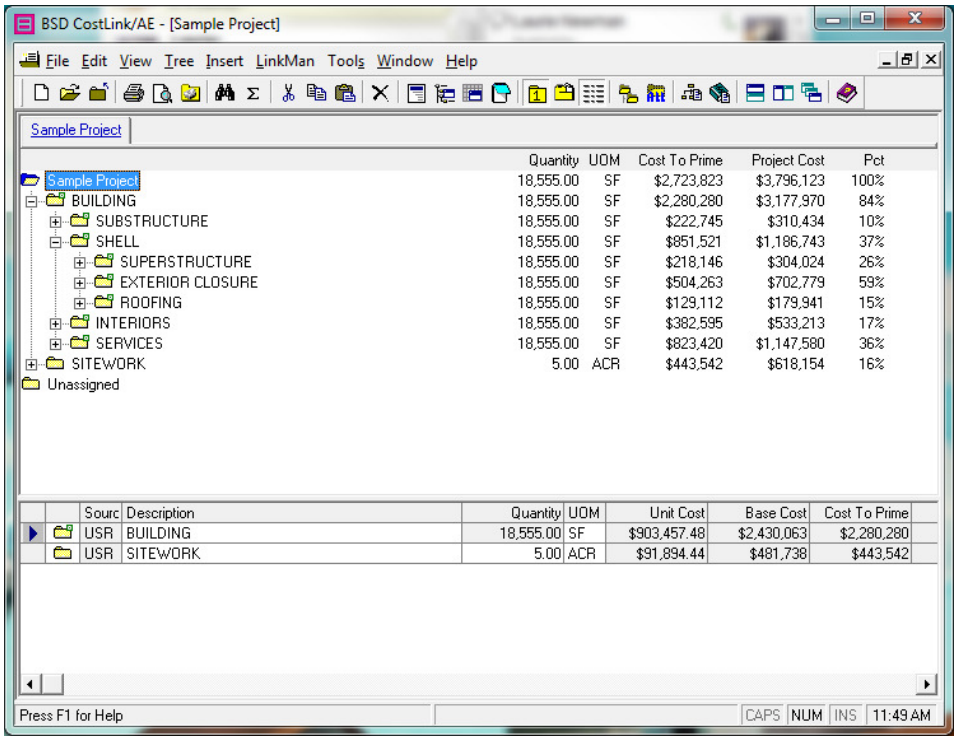
    The EXTERIOR CLOSURE folder and all its subfolders and tasks are copied under the SHELL folder in your project.

NOTE: Additional options in the context menu were *Copy Folders Here* and *Copy Tasks Here*. *Copy Folders Here* copies only folders, not tasks. *Copy Tasks Here* copies all tasks (assemblies and line items). These options can only be accessed by dragging with the right mouse button.

16. Using the same technique, copy the ROOFING folder from the Fire Station Sample project to the SHELL folder in your project (Sample Project).
17. Using the same technique, copy the following folders to the BUILDING folder:

    INTERIORS
    SERVICES
18. Copy the SITEWORK folder to the Sample Project folder at the top of your project.
19. Close the Fire Station Sample project.
20. Maximize your project (by clicking the Maximize button on the project's title bar).
21. Click the *Show folder data in tree* button on the toolbar , or choose the same command from the Tree menu.

    Your project will look something like the following picture. (Your project will have different costs, due to the Location Adjustment you selected.)


BSD CostLink/AE - [Sample Project]
File Edit View Tree Insert LinkMan Tools Window Help
Sample Project
Quantity UOM Cost To Prime Project Cost Pct
Sample Project 18,555.00 SF $2,723,823 $3,796,123 100%
BUILDING 18,555.00 SF $2,280,280 $3,177,970 84%
SUBSTRUCTURE 18,555.00 SF $222,745 $310,434 10%
SHELL 18,555.00 SF $851,521 $1,186,743 37%
SUPERSTRUCTURE 18,555.00 SF $218,146 $304,024 26%
EXTERIOR CLOSURE 18,555.00 SF $504,263 $702,779 59%
ROOFING 18,555.00 SF $129,112 $179,941 15%
INTERIORS 18,555.00 SF $382,595 $533,213 17%
SERVICES 18,555.00 SF $823,420 $1,147,580 36%
SITEWORK 5.00 ACR $443,542 $618,154 16%
Unassigned
Sourc Description Quantity UOM Unit Cost Base Cost Cost To Prime
USR BUILDING 18,555.00 SF $903,457.48 $2,430,063 $2,280,280
USR SITEWORK 5.00 ACR $91,894.44 $481,738 $443,542
Press F1 for Help
CAPS NUM INS 11:49 AM

Sample Project showing costs in Tree Panel

The Project Cost column shows a higher dollar amount than the Base Cost column since there are already some markups being applied to the project's costs by the default cost markup and adjustment settings in the Summary Info dialog box.

Selecting and Printing Reports

The Sample Project is now complete. The next step is to print reports.

1. From the File menu choose *Reports Setup* or click the *Select and format reports* button on the toolbar .

   The Reports dialog box opens to the Select Reports tab.

2. Leaving the *Organization Name* the same (this defaults to the Company Name that was filled in by the person who installed the software), change the *Report Header* to say `65% Submittal`.

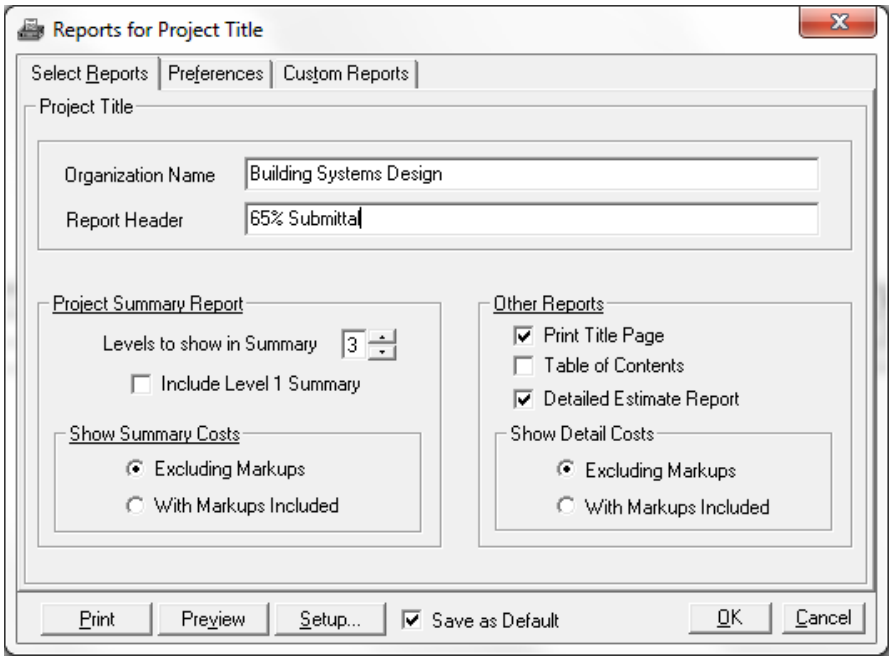
3. Change *Levels to show in Summary* to `3`, if not already set to 3.

4. Leave both *Show Summary Costs* and *Show Detail Costs* as `Excluding Markups`.

This will display the Direct Costs in the body of the report, with the Contractor and Other Markups added at the end of the report.

5. Click to select *Print Title Page* and *Detailed Estimate*, if they are not already selected and Deselect *Table Of Contents*.

   The Select Reports tab should now look like the following picture, except for the Organization Name.

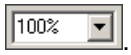


Reports dialog box with reports selected for tutorial

6. Click the Preferences Tab.
7. Make sure that all options are checked under *Detail and Summary Report Options*, *Summary Report Options*, and *Print Detail Options*.
8. Make sure that no options are checked under *Print Notes and Footer*.

   Notice that the Print and Preview buttons are grayed out on this tab.
9. Click the Select Reports tab.
10. Click *Preview*.

    CostLink/AE creates the reports and displays them in a Print Preview window.
11. Once the reports appear, maximize the Print Preview window either by double-clicking on the title bar of the window, or click the Maximize button ☐.

12. To zoom in, click the arrow on the zoom selector and choose 100%  .
13. Click the *Next Page* button on the toolbar , to view the report page by page.
14. To export your reports to Adobe Acrobat portable document format (PDF), Word, or Excel file format, click on the Envelope button on the toolbar .

    For more information on exporting your reports, see chapter 5.
15. To print the reports to your default Windows printer, click the printer button in the Print Preview window .
16. To close the Print Preview window click the Windows close button on the preview window's title bar .
17. Open the Reports Setup dialog box, and select or deselect other options. Preview to see how the options change the report.

    For more information on reports and report options, see chapter 5.
18. When finished, close the Sample Project by going to the File menu and choosing Close. To close BSD CostLink/AE, from the File menu choose Exit.

You have now completed the BSD CostLink/AE tutorial. See the other chapters in the User Manual, or use the Help in the software for additional information on other options.

About the CostLink/AE Display

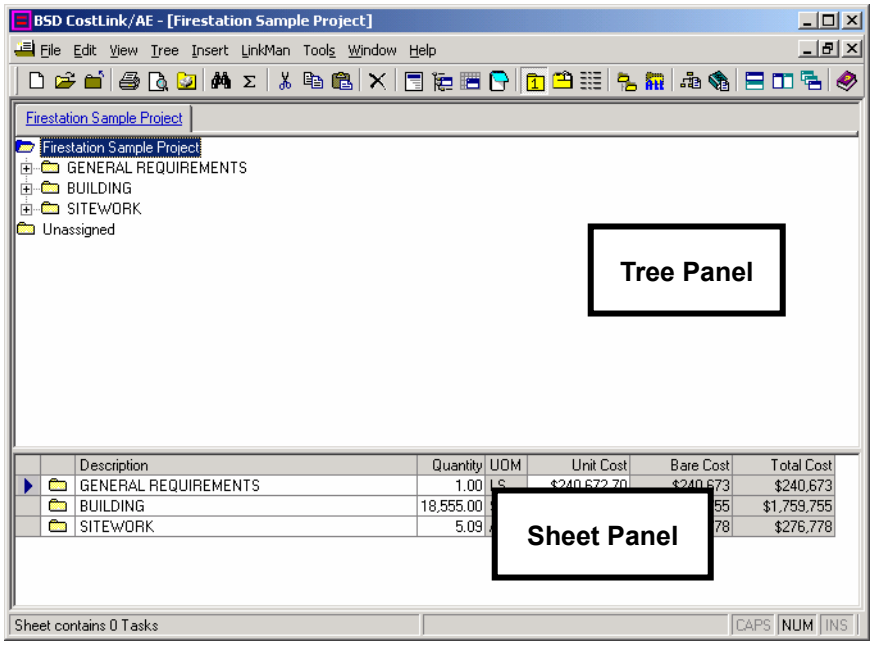
BSD CostLink/AE provides some flexibility in how data is displayed. You can configure the display of projects and resource views using multiple panels, windows, and tabs.

This chapter explains how to:

- Configure panels and windows
- Recognize icons on the tree and sheet panel
- Control the information in the tree and sheet panel
- Customize the toolbars
- Use the online Help

Configuring Panels and Windows

BSD CostLink/AE displays your estimates, assembly resources, and unit price resources in *database windows* within the main program window, and in panels within these windows. The default display for each window is with the Tree Panel on top and the Sheet Panel on the bottom.



CostLink/AE default display

To change the display of the panels use the following commands:

- To arrange the panels side-by-side, choose View > with Vertical Panels.
- To return to the default display, choose View > with Horizontal Panels.

Configuring Multiple Windows

You will often have multiple windows displayed in BSD CostLink/AE to show your estimate and resource windows at the same time, or to show multiple estimates at the same time. This allows you to copy folders and tasks into your project from resource windows and other projects.

When you have more than one window displayed, use the following menu and toolbar commands to arrange the windows.

- To tile windows vertically, click the *Tile windows vertically* toolbar button , or choose Window > Tile Vertically.
- To tile windows horizontally, click the *Tile windows horizontally* toolbar button , or choose Window > Tile Horizontally.
- To cascade the open windows, click the *Stack windows in cascade* toolbar button , or choose Window > Cascade Windows.

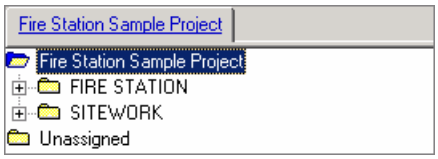
Tips For Using Tile and Cascade:

- When you choose one of the Tile or Cascade options, the currently active window will be on the left (if you choose Tile Vertically) or on the top (if you choose Cascade or Tile Horizontally). If you want a different window on the left or top, make the desired window the active window (by clicking its title bar) and choose the Tile or Cascade command again.
- If you minimize a window, it will not be tiled or cascaded.
- When you have multiple estimates open, the prompt on the bottom left of the screen displays the drive, path, and filename of the currently active project. This is true whether the project window is active or one of its resource windows.
- When you have multiple windows open, the bottom of the Window menu lists all the open windows. The currently active window is marked with a checkmark. To make a different window active, click on the window or choose it from the Window menu.

Choosing Single or Multiple Tabs

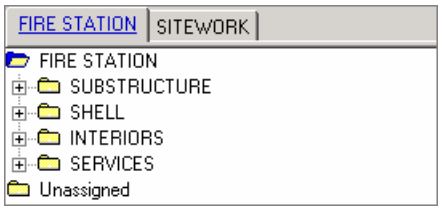
By default, BSD CostLink/AE divides the display of each project and resource window into multiple tabs, one tab for each main division as represented by the folders at Level 1. You can show all of the folders on a single tab.

- To display all folders on one tab, click the *Use single tab for tree* button on the toolbar or choose Tree > Use Single Tab.



CostLink/AE display with all data on a single tab

- To display the folders on multiple tabs, click the *Use single tab for tree* button on the toolbar or choose Tree > Use Single Tab again. (The Use Single Tab command and button are toggles.)



CostLink/AE display with data on multiple tabs

Icons On the Tree and Sheet Panels

BSD CostLink/AE displays many icons in the Tree and Sheet panels to identify the kinds of data and its position and status in the database.

Tree Panel Icons

Folder: Indicates that the item is a folder.

Plus sign: Indicates that the folder has folders below it in the hierarchy that are not currently displayed. The view is collapsed. Click the plus sign to expand the view.

Minus sign: Indicates that the folder has folders immediately below it which are already being shown. The view is expanded. Click the minus sign to collapse the view.

Folder/Task: Indicates that the folder has tasks (assemblies or line items) directly inside it. To view the tasks, click on the folder and the tasks will show in the Sheet panel.

Notes: Indicates that the folder has Notes attached to it. To view the notes, click on the folder, and then click the *Open the Notes form* button on the toolbar.

Folder with Link: The green Excel icon in the upper right corner indicates that the quantity of the folder is linked to the quantity of the parent folder or to Excel. Linking to Excel automatically inserts a note as indicated by the blue in the bottom left.

See Chapter 7 for information on linking.

Sheet Panel Icons

Folder: Indicates that the item is a folder.

Folder/Task: The item is a folder with tasks directly inside it. To view the tasks, click on the folder in the Tree panel and the tasks will display in the Sheet panel.

Folder with Link: The green Excel icon in the upper right corner indicates that the quantity of the folder is linked to the quantity of the parent folder or to Excel. Linking to Excel automatically inserts a note as indicated by the blue in the bottom left.

Assembly: The item is an assembly.

Assembly/Note: The assembly has a note as indicated by the blue in the bottom left.

Assembly with Link: The green Excel icon in the upper right corner indicates that the quantity of the assembly is linked to the quantity of the parent folder or to Excel. Linking to Excel automatically inserts a note as indicated by the blue in the bottom left.

Line Item: The item is a line item.

Line Item/Note: The line item has a note as indicated by the blue in the bottom left.

Line Item with Link: The green Excel icon in the upper right corner indicates that the quantity of the line item is linked to the quantity of the parent folder or to Excel. Linking to Excel automatically inserts a note as indicated by the blue in the bottom left.

Working with the Tree Panel

The Tree Panel shows the hierarchy of data in the project or resource window, illustrated as a tree structure of folders. BSD CostLink/AE gives you options for configuring the display of the Tree Panel.

Expanding and Collapsing the Tree

To expand the view of any collapsed folder:

- Click on the plus sign ⊞ beside the folder.

To collapse the view of any expanded folder:

- Click on the minus sign ⊟ beside the folder.

To expand a branch to show all folders in that part of the project or resource window:

1. Position the cursor in any part of the branch.
2. Click the *Expand Branch* toolbar button . (You can also ***right*** click on a folder in the branch and choose *Expand Branch* from the context menu.)

To expand the tree to show all folders:

- Click the *Expand All* toolbar button .

To show folder tags of folders in the Tree Panel:

- Choose Tree > Show Folder Tags. Or click the *Show folder tags* button on the toolbar . This command acts as a toggle. Click it again to turn off the folder tags.

To show summarized cost information:

In the project window, you can show summarized costs for each folder in the tree panel.

- Choose Tree > Show Data in Tree. Or click the *Show folder data in tree* button on the toolbar . This command acts as a toggle. Click it again to turn off the data display.

Working With the Sheet Panel

The Sheet Panel shows the folders or tasks that are one level below the folder selected in the Tree Panel. Information about the folders or tasks is displayed in a spreadsheet format. BSD CostLink/AE lets you modify the way the information is displayed.

To change the width of a column:

1. With the mouse, point to the border between two column headings.

   The mouse pointer turns into a double arrow.
2. Click and drag to resize the column.

To autosize rows:

Autosize is a toggle that changes the height of all rows. When Autosize is on (the default), all the information in the description field is displayed. When off, only the first line of the description is displayed.

- Point to any row in the sheet panel and click the right mouse button. Choose Autosize Rows from the context menu.
- This command acts as a toggle. Choose it again to turn Autosize back on.

To sort data in the sheet panel:

You can sort the folders or tasks in ascending or descending order, based on any column of information.

- Click on the heading for the column you want to sort by. The folders and/or tasks are sorted in ascending order by that column. Click again to sort by descending order.

To freeze the display at a column:

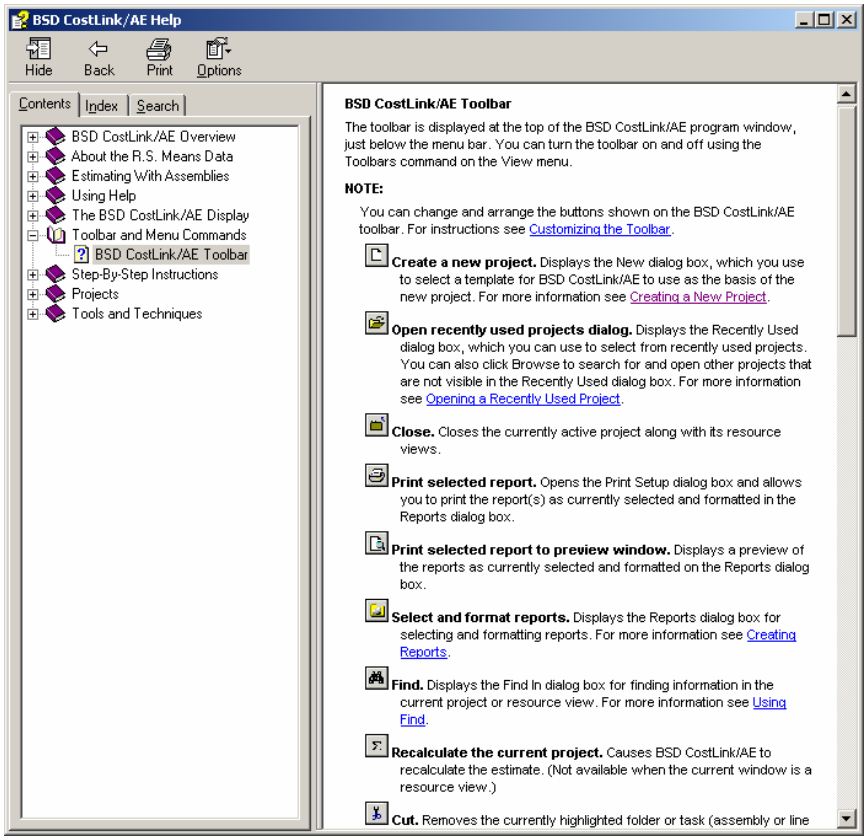
As with a spreadsheet, you can freeze the sheet panel so that certain columns of information remain displayed while you scroll right or left.

1. Right-click on any folder or task in the column of information that you want to freeze. A context menu opens.
2. From the context menu, choose Freeze Columns to (name of the column).

   This command is a toggle. Choose it again to Unfreeze the column.

Online Help

BSD CostLink/AE includes an online Help system.


BSD CostLink/AE Help
Hide
Back
Print
Options
Contents
Index
Search
BSD CostLink/AE Overview
About the R.S. Means Data
Estimating With Assemblies
Using Help
The BSD CostLink/AE Display
Toolbar and Menu Commands
BSD CostLink/AE Toolbar
Step-By-Step Instructions
Projects
Tools and Techniques
BSD CostLink/AE Toolbar
The toolbar is displayed at the top of the BSD CostLink/AE program window, just below the menu bar. You can turn the toolbar on and off using the Toolbars command on the View menu.
NOTE:
You can change and arrange the buttons shown on the BSD CostLink/AE toolbar. For instructions see Customizing the Toolbar.
Create a new project. Displays the New dialog box, which you use to select a template for BSD CostLink/AE to use as the basis of the new project. For more information see Creating a New Project.
Open recently used projects dialog. Displays the Recently Used dialog box, which you can use to select from recently used projects. You can also click Browse to search for and open other projects that are not visible in the Recently Used dialog box. For more information see Opening a Recently Used Project.
Close. Closes the currently active project along with its resource views.
Print selected report. Opens the Print Setup dialog box and allows you to print the report(s) as currently selected and formatted in the Reports dialog box.
Print selected report to preview window. Displays a preview of the reports as currently selected and formatted on the Reports dialog box.
Select and format reports. Displays the Reports dialog box for selecting and formatting reports. For more information see Creating Reports.
Find. Displays the Find In dialog box for finding information in the current project or resource view. For more information see Using Find.
Recalculate the current project. Causes BSD CostLink/AE to recalculate the estimate. (Not available when the current window is a resource view.)
Cut. Removes the currently highlighted folder or task (assembly or line

BSD CostLink/AE Help, Contents Tab

Contents Tab

The Contents tab is similar to the table of contents in a book. Each book icon represents a subheading in the Help file. Each page icon represents a topic.

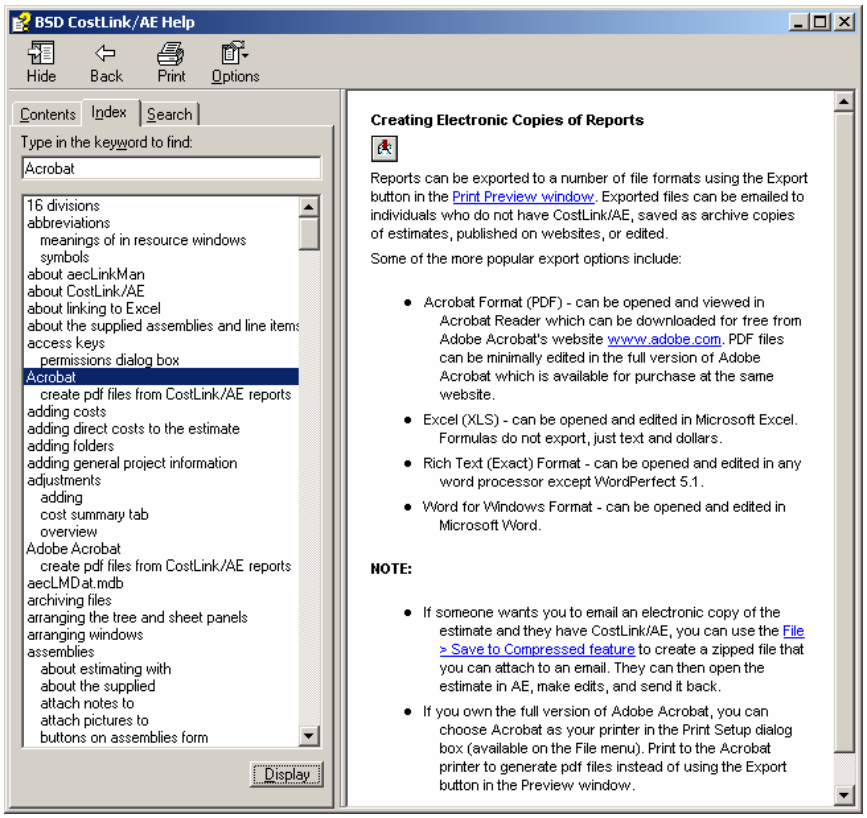
To access the Contents tab:

1. Choose Help > Contents. The Contents tab opens.
2. Select a book and double-click it to view more topics.

To access a topic, select any page icon.

To print a topic or range of topics, select any book or page icon and click the Print button. Windows Help displays the Print dialog box. Click OK. Windows Help prints the selected topic or the selected heading and all subtopics.

Print individual topics by viewing the topic, clicking *Options*, and choosing *Print*.


BSD CostLink/AE Help
Hide
Back
Print
Options
Contents
Index
Search
Type in the keyword to find:
Acrobat
16 divisions
abbreviations
meanings of in resource windows
symbols
about aecLinkMan
about CostLink/AE
about linking to Excel
about the supplied assemblies and line items
access keys
permissions dialog box
Acrobat
create pdf files from CostLink/AE reports
adding costs
adding direct costs to the estimate
adding folders
adding general project information
adjustments
adding
cost summary tab
overview
Adobe Acrobat
create pdf files from CostLink/AE reports
aecLMDat.mdb
archiving files
arranging the tree and sheet panels
arranging windows
assemblies
about estimating with
about the supplied
attach notes to
attach pictures to
buttons on assemblies form
Display
Creating Electronic Copies of Reports
Reports can be exported to a number of file formats using the Export button in the Print Preview window. Exported files can be emailed to individuals who do not have CostLink/AE, saved as archive copies of estimates, published on websites, or edited.
Some of the more popular export options include:
Acrobat Format (PDF) - can be opened and viewed in Acrobat Reader which can be downloaded for free from Adobe Acrobat's website www.adobe.com. PDF files can be minimally edited in the full version of Adobe Acrobat which is available for purchase at the same website.
Excel (XLS) - can be opened and edited in Microsoft Excel. Formulas do not export, just text and dollars.
Rich Text (Exact) Format - can be opened and edited in any word processor except WordPerfect 5.1.
Word for Windows Format - can be opened and edited in Microsoft Word.
NOTE:
If someone wants you to email an electronic copy of the estimate and they have CostLink/AE, you can use the File > Save to Compressed feature to create a zipped file that you can attach to an email. They can then open the estimate in AE, make edits, and send it back.
If you own the full version of Adobe Acrobat, you can choose Acrobat as your printer in the Print Setup dialog box (available on the File menu). Print to the Acrobat printer to generate pdf files instead of using the Export button in the Preview window.

BSD CostLink/AE Help, Index Tab

Index Tab

The Index tab is used to search Help by keywords for each topic.

To access the Index tab, from the Help menu choose *Use Index for Help On*, or click the Index tab on any Help window. To Search by Keyword, follow the instructions.

RS Means Abbreviations and Symbols

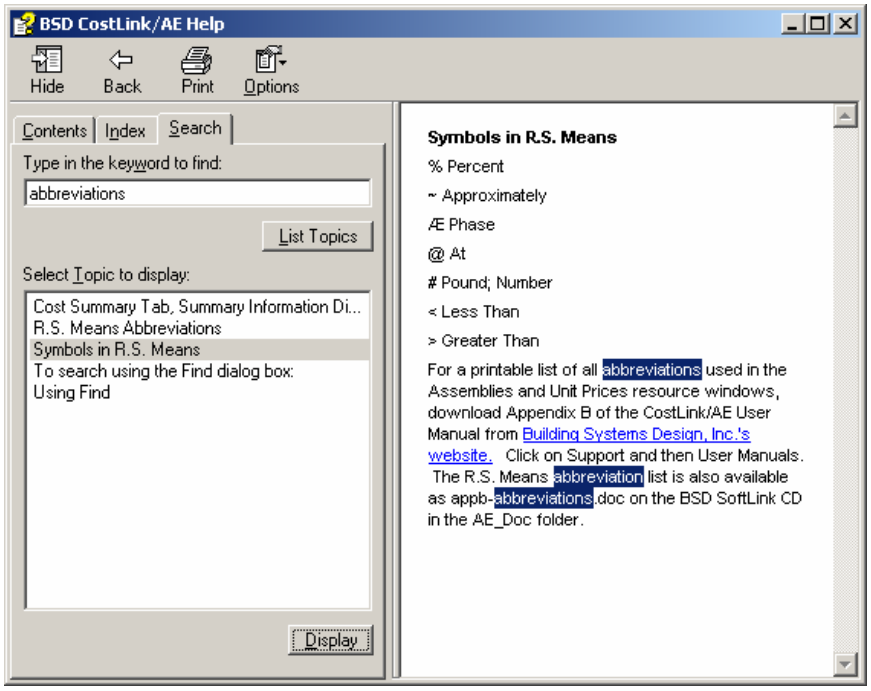
For a printable list of the abbreviations used in the Assemblies and Unit Prices resource windows, download Appendix B of the CostLink/AE User Manual from Building Systems Design, Inc.'s website. Click on Support and then User Manuals. The R.S. Means abbreviation list is also available as appb-abbreviations.doc on the BSD SoftLink CD in the AE_Doc folder.

Search Tab

The Search tab is used to conduct a full-text search of all Help topics. Use the Search tab if you cannot find the Help you need using the Contents or Index tabs.

To access the Search tab, choose Help > Search for Keyword in Help.

To Search, follow the instructions on the tab.


BSD CostLink/AE Help
Hide
Back
Print
Options
Contents
Index
Search
Type in the keyword to find:
abbreviations
List Topics
Select Topic to display:
Cost Summary Tab, Summary Information Di...
R.S. Means Abbreviations
Symbols in R.S. Means
To search using the Find dialog box:
Using Find
Display
Symbols in R.S. Means
% Percent
~ Approximately
Æ Phase
@ At
# Pound; Number
< Less Than
> Greater Than
For a printable list of all abbreviations used in the Assemblies and Unit Prices resource windows, download Appendix B of the CostLink/AE User Manual from Building Systems Design, Inc.'s website. Click on Support and then User Manuals. The R.S. Means abbreviation list is also available as appb-abbreviations.doc on the BSD SoftLink CD in the AE_Doc folder.

BSD CostLink/AE Help, Search Tab

Projects, Models, Tasks, & Markups

This chapter describes all of the components of projects that you see in the BSD CostLink/AE interface. It also provides explanations and instructions for working with projects, adding tasks to your estimate, and applying markups.

- Working with projects
- Summary Info dialog box
- Using cost models
- Folder form
- Task form
- About the supplied cost data
- About assemblies
- About line items
- Copying tasks into projects
- Creating line items
- Applying markups

Working with Projects

Project databases are used to build estimates. Each estimate that you create in BSD CostLink/AE is a separate project database, which is a file with the extension .mpj.

Opening a Project

Use these instructions to open an existing estimate. To open a project:

1. Choose File > Open > Open Project Database.

   The Open Database dialog box opens, showing the projects in the Projects folder.
2. Select a project in the folder, or use the dialog box to navigate to a different folder.
3. Click Open.

   The project database opens.

Opening a Recently Used Project

The bottom of the File menu lists the last four projects that were opened. Click the name of the project to open it.

Existing projects can also be opened using the Recently Used dialog box. To open a recently used project using the Recently Used dialog box:

1. Choose File > Open > Recently Used Window, or click the *Open recently used project dialog* toolbar button .

   The Recently Used dialog box opens, showing the projects that have been opened on this computer.
2. Select a project and click Open.

   The project opens.

Tips on using the Recently Used dialog box:

- If the project you want to open is not listed, click the Browse button.
- If you are not sure which project you edited last, or if you would like to know where each project is located, under View, click the Details option. You can scroll to the right to view additional information about each project, and/or resize the Recently Used window.
- If there is a project in this window that you no longer want listed here, click once on the name of the project, and then click the Remove button. This does not remove the project from your computer; it removes it from the list of Recently Used projects.

Creating a New Project

You can create a new project based on one of the templates supplied with BSD CostLink/AE or based on any existing project. Your new project inherits the folders, tasks, and Summary Info from the selected template or existing project. You can change this information once the project is created.

1. Choose File > New, or click the *Create a new project* toolbar button .

   The New dialog box opens, showing the available project templates.

2. Choose a template from the list area, or click the Browse button to select a different template or existing project.

3. Click New.

   The Save New Project Database As dialog box opens.

4. If desired, select a different folder to save your project in, and type a filename for your project in the File name field. Click Save.

   BSD CostLink/AE creates and opens the new project and its Summary Info dialog box. (See the next topic for information on the Summary Info dialog box.)

CostLink/AE comes with four templates for starting new projects. The templates are located in the CostLink AE\system\templates folder.

- Uniformat II Project Template with Models
- MasterFormat 2004 Project Template.MPJ
- MasterFormat (16 division) Project Template
- No WBS Project Template

NOTE: WBS stands for Work Breakdown Structure. In projects, folders represent the WBS. Therefore, the Uniformat II template contains folders that match Uniformat II, the MasterFormat templates contains folders that match CSI's (Construction Specification Institute's) MasterFormat-95 16 divisions and the MF-2004 50 divisions. The No WBS template has no folders.

If you are creating an estimate for a client who requires a specific WBS that does not follow Uniformat II or MasterFormat, then create the new project using the No WBS Project Template and add folders that match the client's WBS. The folders will be the major headings in the reports.

Summary Info Dialog Box

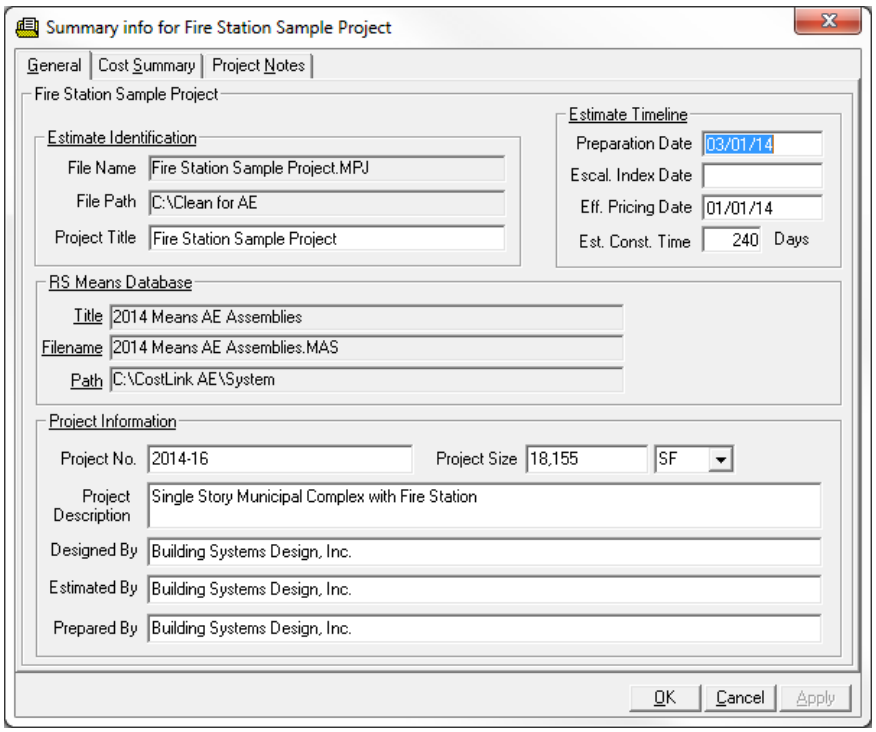
Use the Summary Info dialog box to display and edit information about the project. This includes descriptive information that will print on the report title page, cost markup information, cost models, model additives, and notes about the project as a whole.

The Summary Info dialog box opens automatically when you create a new project. To display the Summary Info dialog box for the current project at any other time:

- Choose File > Summary Info or click the *Open the summary info dialog* toolbar button .

General Tab

Use the General tab to display and edit general information about the estimate.



Summary Info dialog box, General tab

> **NOTE:** The tabs available on the Summary Info dialog box will vary, depending on the project template used. If the *Uniformat II Project Template with Models* is selected, the Summary Info dialog box will have two tabs in addition to those shown on the preceding page. All other templates will open a Summary Info dialog box with the three tabs shown.

Estimate Identification

File Name	File name for the project that was entered when you created the project. (This cannot be changed here. To change the filename of a project, close the project and change the name in Windows Explorer.)
File Path	Drive and directory where the project is stored. (This cannot be changed here. To change the File Path, close the project and use Windows Explorer to move the project.)
Project Title	Name of the project that appears on reports and on the folder at the top level of the tree panel.

Estimate Timeline

Preparation Date	Date of preparation of the estimate.
Escal. Index Date	The date of publication of the escalation index table used in the project.
Eff. Pricing Date	Date for which the pricing in the project is effective.
Est. Const. Time	Estimated number of workdays to complete the project.

Cost Database

This area displays the Title, Filename, and Path of the cost database being referenced by the project.

Project Information

Project No.	Number to identify project. Will be the folder tag on the level 0 folder (visible only when you are viewing the project with single tab turned on -). On reports, this number appears on the left side of the footer and as a folder tag for the top-level folder in summary reports.
Project Size and UOM	The estimated size and unit of measure of the project that is being estimated. This displays a unit cost for the project on the top-level folder in the tree panel, on the Cost Summary tab, and on the bottom line of the reports.
Project Description	A description of the project. Can be up to 255 characters.

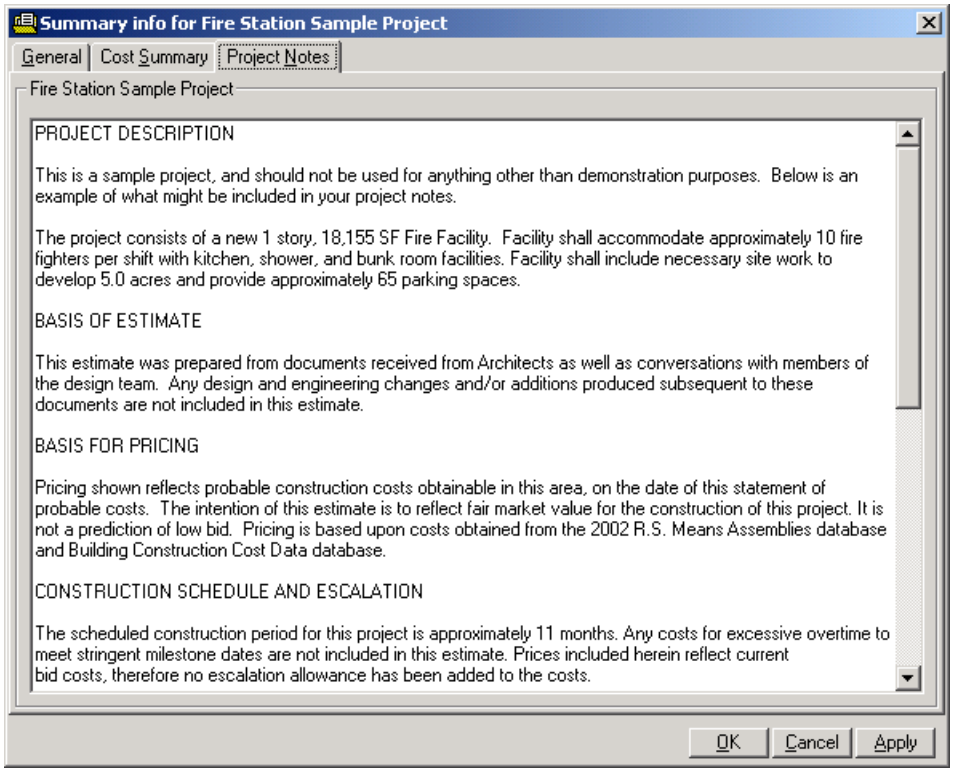
Designed By	The architect's or engineer's name or the firm's name.
Estimated By	The estimator's name or firm's name.
Prepared By	The estimator's firm or consulting firm and location.

Cost Summary Tab

The fields on the Cost Summary tab and how to enter the markups are explained in the last section of this chapter under Applying Markups.

Project Notes Tab

Use this tab to enter any project level descriptive notes that you want to include with the estimate. Project Notes can be printed on reports.

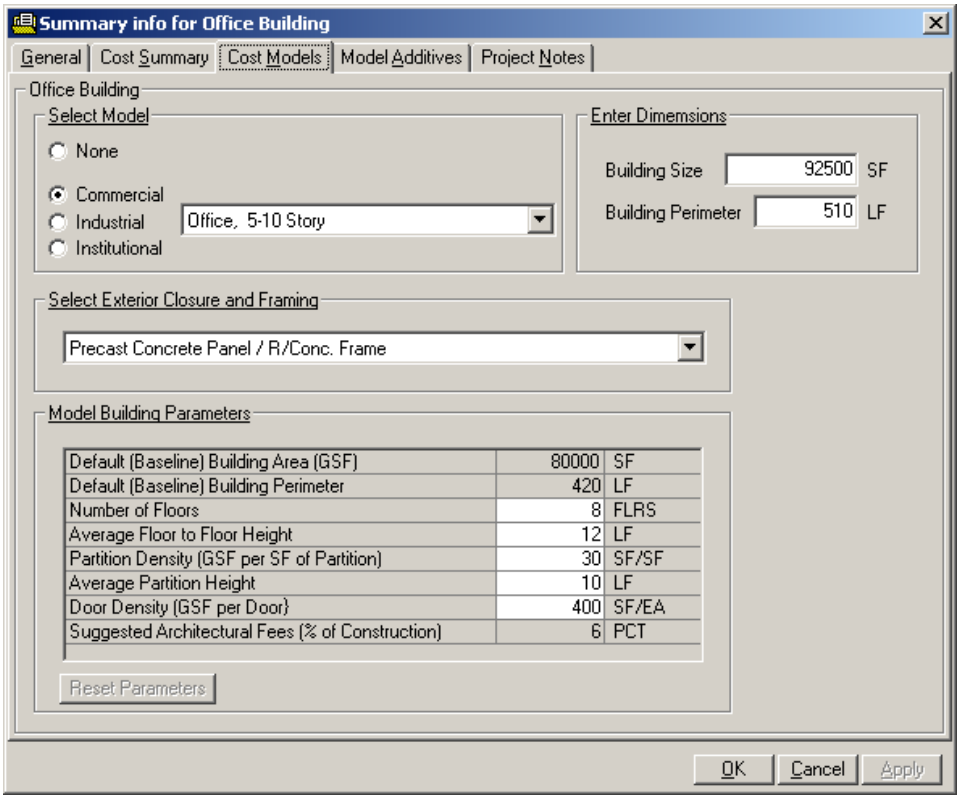

Summary info for Fire Station Sample Project
General
Cost Summary
Project Notes
Fire Station Sample Project
PROJECT DESCRIPTION
This is a sample project, and should not be used for anything other than demonstration purposes. Below is an example of what might be included in your project notes.
The project consists of a new 1 story, 18,155 SF Fire Facility. Facility shall accommodate approximately 10 fire fighters per shift with kitchen, shower, and bunk room facilities. Facility shall include necessary site work to develop 5.0 acres and provide approximately 65 parking spaces.
BASIS OF ESTIMATE
This estimate was prepared from documents received from Architects as well as conversations with members of the design team. Any design and engineering changes and/or additions produced subsequent to these documents are not included in this estimate.
BASIS FOR PRICING
Pricing shown reflects probable construction costs obtainable in this area, on the date of this statement of probable costs. The intention of this estimate is to reflect fair market value for the construction of this project. It is not a prediction of low bid. Pricing is based upon costs obtained from the 2002 R.S. Means Assemblies database and Building Construction Cost Data database.
CONSTRUCTION SCHEDULE AND ESCALATION
The scheduled construction period for this project is approximately 11 months. Any costs for excessive overtime to meet stringent milestone dates are not included in this estimate. Prices included herein reflect current bid costs, therefore no escalation allowance has been added to the costs.
OK
Cancel
Apply

Summary Info dialog box, Project Notes tab

NOTE: If you would like to spell check your notes, type them in your word processor using its spell checker. Then use your word processor's Copy command to copy your notes, click in the Project Notes tab, and use CTRL+V to paste the notes.

Cost Models Tab

Use this tab to select an RS Means cost model to use as the basis for your project cost estimate. This tab also allows you to enter critical data about your project, to select an exterior closure and framing option, and to make adjustments to the model building parameters that drive the formulas embedded in the cost model.



Summary Info dialog box, Cost Models tab

NOTE: This tab is available only if you started your project by using the Uniformat II Project Template with Models.

Select Model

None	Selecting this option nullifies the modeling template.
Commercial	Selecting this option changes the models available in the adjacent pull-down to all available commercial models. Click on arrow to pull down list and click on list to choose model.
Industrial	Selecting this option changes the models available in the adjacent pull-down to all available industrial models. Click on arrow to pull down list and click on list to choose model.
Institutional	Selecting this option changes the models available in the adjacent pull-down to all available institutional models. Click on arrow to pull down list and click on list to choose model.

Enter Dimensions

Building Size	Enter total gross square footage of project. Note that model cost estimate may not be accurate if area entered here is significantly greater or smaller than default (baseline) building area indicated under Model Building Parameters.
Building Perimeter	Enter total linear feet of building perimeter. Note that model cost estimate may not be accurate if length entered here is significantly greater or smaller than default (baseline) building perimeter indicated under Model Building Parameters.

Select Exterior Closure and Framing

Pull-Down List	Click on arrow to pull down list of six possible exterior closure and framing options available for specific model selected. Click on option to select exterior closure and framing.

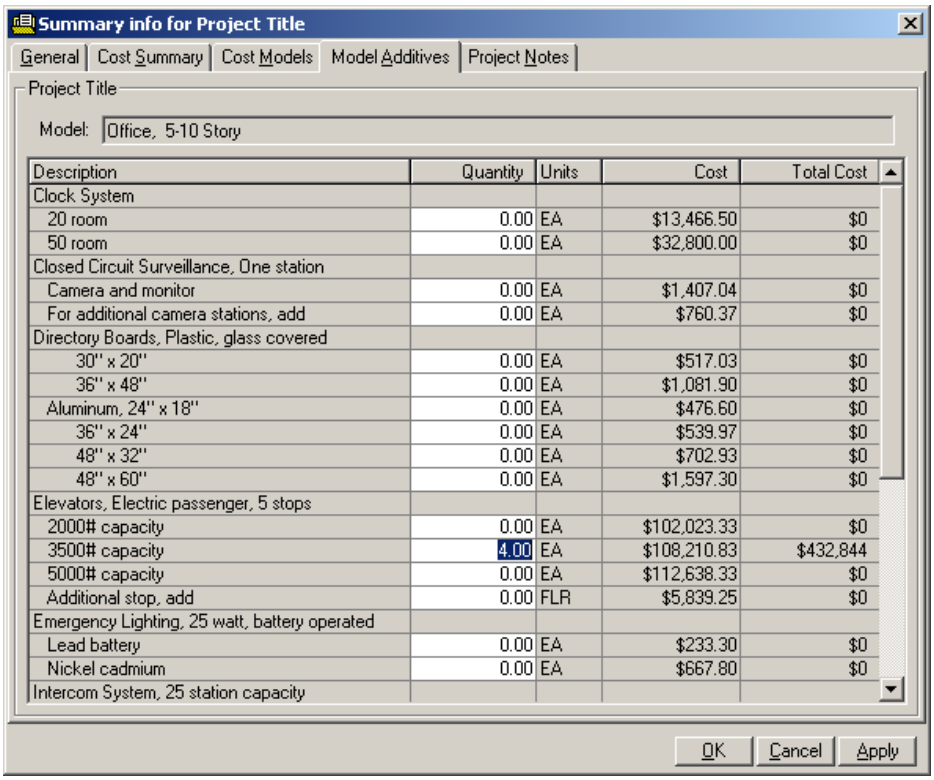
Model Building Parameters

Fixed Parameters	*Default (Baseline) Building Area (GSF)* is the gross area of the building on which the model is based. *Default (Baseline) Building Perimeter* is the length of the perimeter of the building on which the model is based. These two parameters are stated for informational purposes and cannot be adjusted here, but alternative size and perimeter may be entered above in the same dialog box (see *Enter Dimensions,* above). *Suggested Architectural Fees* also cannot be altered here but may be adjusted on the Cost Summary tab of the Summary Info dialog box.

Adjustable Parameters	The remaining building parameters -- Number of Floors, Average Floor to Floor Height, Partition Density, Average Partition Height, and Door Density may be adjusted here by entering alternative numbers for the default values used in the model. However, caution is advised in making significant changes to model building parameters.

Model Additives Tab

After you have selected a model, use this tab to enter quantities for special items not included in the base building cost estimate. The items that appear on this tab will vary with the model chosen. Entering a quantity adjacent to any item automatically adds the cost of the item to your model cost estimate.



Description	Quantity	Units	Cost	Total Cost
Clock System				
20 room	0.00	EA	$13,466.50	$0
50 room	0.00	EA	$32,800.00	$0
Closed Circuit Surveillance, One station				
Camera and monitor	0.00	EA	$1,407.04	$0
For additional camera stations, add	0.00	EA	$760.37	$0
Directory Boards, Plastic, glass covered				
30" x 20"	0.00	EA	$517.03	$0
36" x 48"	0.00	EA	$1,081.90	$0
Aluminum, 24" x 18"	0.00	EA	$476.60	$0
36" x 24"	0.00	EA	$539.97	$0
48" x 32"	0.00	EA	$702.93	$0
48" x 60"	0.00	EA	$1,597.30	$0
Elevators, Electric passenger, 5 stops				
2000# capacity	0.00	EA	$102,023.33	$0
3500# capacity	4.00	EA	$108,210.83	$432,844
5000# capacity	0.00	EA	$112,638.33	$0
Additional stop, add	0.00	FLR	$5,839.25	$0
Emergency Lighting, 25 watt, battery operated				
Lead battery	0.00	EA	$233.30	$0
Nickel cadmium	0.00	EA	$667.80	$0
Intercom System, 25 station capacity				

Summary Info dialog box, Model Additives tab

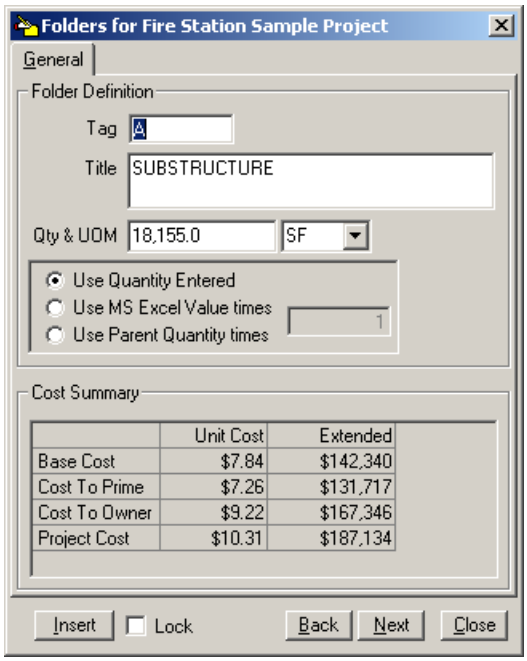
NOTE: This tab is available only if you started your project by using the Uniformat II Project Template with Models. The tab will be blank until you have chosen a model from the Cost Models tab.

Folder Item Form

The folder item form shows information for the folder currently selected in the Tree or Sheet panel.

Use any of the following methods to open a folder item form:

- Select a folder in the tree panel, and then choose View > Tree Items Form, or click the *Open item form on the Tree panel* toolbar button .
- Select a folder in the sheet panel, and then choose View > Sheet Items Form, or click the *Open item form on the Sheet panel* toolbar button .
- Right-click on a folder in the tree panel and from the context menu choose Edit Folder.
- Right-click on a folder in the sheet panel and from the context menu choose Edit Item.
- Double-click on a folder in the tree panel.
- Double-click on a folder in the sheet panel.



A project folder item form

General Tab

Folder Definition

Tag	Optional ID for the folder. The tag is sometimes used to specify the folder's position or sequence in the group of folders at this database level, although the Folder Tag does not affect the position or sequence of the folder. Can be displayed in the Tree panel by choosing Tree > Show Folder Tags.
Title	Description you assign to the section of the project represented by this folder.
Qty	Quantity associated with this element of the project. Entering a quantity value here enables BSD CostLink/AE to compute a unit cost for this project element. If a Quantity is not entered, then the unit and extended costs shown in the cost grid below are the same.
UOM	Unit of measure associated with the Quantity.
Use Quantity Entered	Select this option (the default) to enter a quantity in the Qty field to calculate the Unit Cost.
Use MS Excel Value times	Select this option to link the quantity to a value in an MS Excel spreadsheet. When selected, the grayed out 'times' field becomes available and turns white. The default value is 1. ***For more information*** on linking, see Chapter 7.
Use Parent Quantity times	Select this option to link the quantity to the quantity of the folder that contains the current folder. When selected, the grayed out 'times' field becomes available and turns white. The default value is 1. Enter a different factor if necessary to calculate the quantity. As the quantity is changed on the parent folder, the quantity on this folder will change. ***For more information*** on linking, see Chapter 7.

Cost Summary

The grid shows the unit and extended costs for all tasks beneath this folder.

Base Cost	The Base Cost is the Direct Cost. Cost of the tasks beneath this folder before any of the adjustments or markups are applied from the Cost Summary tab of the Summary Info dialog box.
Cost To Prime	Cost To the Prime Contractor. The Unit Cost plus the Location Adjustment and Sales Tax (as set in the Summary Info dialog box on the Cost Summary tab) for this element.
Cost To Owner	Cost To the Project Owner. The Cost To Prime plus the Contractor Fees (as set in the Summary Info dialog box on the Cost Summary tab) for this element.

Project Cost	Total Cost. The Cost To Owner plus any Other Costs (as set in the Summary Info dialog box on the Cost Summary tab) for this element.

Buttons on the Folder Form

These buttons and controls appear at the bottom of the form.

Insert	Clicking this button adds a new folder at the same level as and above the current folder. It also displays a blank folder form for the new folder.
Lock	Select this option to lock the form on the current folder. You can then click in a different window without the form disappearing.
Back	Displays the form for the previous folder displayed in the tree or sheet panel.
Next	Displays the form for the next folder displayed in the tree or sheet panel.
Close	Applies any changes you have made on the form, and closes the form.

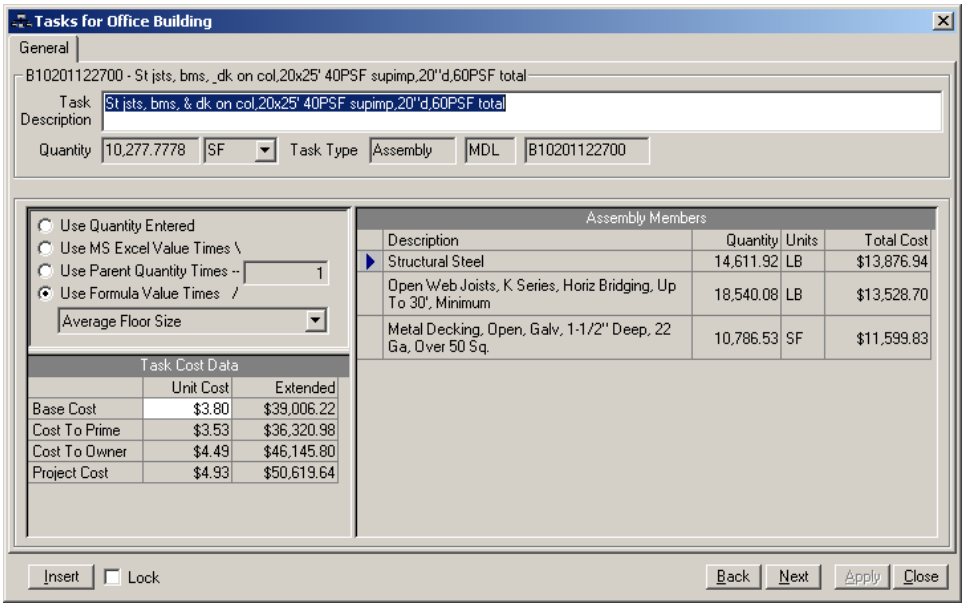
Task Item Form

The task item form shows information for the project task currently selected in the sheet panel.

To open a task item form for an assembly or line item use one of the following methods:

- Select the task in the sheet panel, and then choose View > Forms > for Sheet Items, or click the *Open item form on the Sheet panel* toolbar button .
- Right-click on the task in the sheet panel, and from the context menu choose Edit Item.
- Double-click on the task in the sheet panel.

The task item form shown and described below is for a task located in a project. Tasks in resource windows are described later in this chapter.



A task item form

NOTE: In order to see more information on the form, you can resize the form, change the location of the splitter bar between Task Cost Data and Assembly Members, and change the width of the fields.

Description

Task Description	Description of the task.
Quantity/UOM	Quantity and unit of measure associated with the task.
Task Type	Indicates whether the task is an Assembly or a Line Item. (This corresponds with the icon in the first column of the Sheet panel: for assembly; for line item.)
Source	Indicates the source of the task: ADD – Additive line item from model ASM – Assembly copied from Assemblies resource window. MDL – An assembly or line item from the base model. RSM – Line item copied from Unit Prices resource window. USR – User-added line item.
Source Tag	Displays a code that is used as a unique identifier for the task.
Use Quantity Entered	Select this option (the default) to enter a quantity in the Qty field to calculate the Extended Cost.

Use MS Excel Value Times	Select this option to link the quantity to a value in an MS Excel spreadsheet. When selected, the grayed out 'times' field becomes available and turns white. The default value is 1. ***For more information*** on linking, see Chapter 7.
Use Parent Quantity Times	Select this option to link the quantity to the quantity of the folder that contains the current folder. When selected, the grayed out 'times' field becomes available and turns white. The default value is 1. Enter a different factor if necessary to calculate the quantity. As the quantity is changed on the folder, the quantity on this task will change. ***For more information*** on linking, see Chapter 7.
Use Formula Value Times (Model Building Parameter)	This is the default option for any project that uses a model as the basis for the project estimate and does not appear if any of the other templates are used. You can select one of the other options to establish a quantity, but in so doing, you will disconnect the assembly or item from the model after receiving a warning message.

NOTE: Be absolutely certain you want to disconnect the task from the model before choosing one of the other options, because you will not be able to reconnect them.

Task Cost Data

This grid shows the unit and extended costs for the task.

Base Cost	Unit and extended direct costs. Type a new value in the Unit Cost column to override the cost of the assembly or line item. Changing this value in a model task will permanently disconnect it from the model and will change the Source.
Cost To Prime	Cost To the Prime Contractor. The Total Bare plus the Location Adjustment and Sales Tax (as set in the Summary Info dialog box on the Cost Summary tab) for this task.

NOTE: If the task is a user-added line item, Cost To Prime will be the same as Base Cost. Location Adjustments and Sales Tax do not get added to user-added line items.

Cost to Owner	Cost To the Project Owner. The Cost To Prime plus the Contractor Fees (as set in the Summary Info dialog box on the Cost Summary tab) for this task.
Project Cost	Total Cost. The Cost To Owner plus any Other Costs (as set in the Summary Info dialog box on the Cost Summary tab) for this task.

Assembly Members

If the task is an assembly, this area lists the line items in the assembly. If the task is a line item, this area is blank.

Description	Description of the line item.
Quantity	Quantity of the line item.
Units	Unit of measure of the line item.
Total Cost	Total direct cost of the line item.

Buttons on the Task Item Form

The task item form has the same buttons as the folder item form as described earlier in this chapter, with the Addition of the Apply button. If you change the quantity or Base Cost, you can click Apply to view the changes in the form. Clicking Apply is not required. You can just change the quantity or Base Cost and then click on a different task or close the form. Your edits will be saved and applied whether you click Apply or not. The Insert button will add a new user-defined line item.

Adding Direct Costs to the Estimate

BSD CostLink/AE gives you four options for entering Direct Cost data in an estimate. You can create an estimate using a cost model, copy assemblies from the assemblies resource window, copy line items from the unit prices resource window, and insert user-defined line items directly into the project.

NOTE: Tasks may also be copied from another BSD CostLink/AE project.

About the Supplied Assemblies and Line Items

The assemblies and line items that come with your subscription are the current year's R.S. Means AE Assemblies and Building Construction Cost Data. See Chapter 1 for R.S. Means' explanation of what is included in the costs.

Working With Resource Windows

Each project you create has two resource windows from which you copy assemblies and line items into your estimate. The resource windows are:

- Assemblies resource window - stores assemblies
- Unit Prices resource window - stores line items.

Opening Resource Windows

In order to copy assemblies or line items into your project, you will need to open the desired resource window. To open a resource window, first open your project, and then use one of the following methods:

- Click the appropriate button on the toolbar:

  Open Assemblies resource window

  Open Unit Prices resource window

- Or, from the File menu, choose Open, and then choose the appropriate resource window.

The resource window will open in a separate window. Depending on whether or not your project window is maximized, the resource window may cover up your project window. In order to view both windows at the same time (which makes it easier to copy tasks from the resource window to the project), tile the windows side-by-side using one of the following methods:

- Click the *Tile windows vertically* button on the toolbar ,
- Or, from the Window menu, choose Tile Vertically.

The resource window and the project window will display side-by-side.

NOTE: You can also tile the windows horizontally or cascade the windows; however, in most cases it is easier to copy tasks with the windows tiled vertically.

If more than two windows are open, the extra windows will also be tiled. If you do not need the extra windows, close them by clicking their close buttons . If you do not want to close the extra windows, minimize them and Tile Vertically again.

Copying Tasks From Resource Windows Into Projects

Once you have both a resource window and your project open side-by-side, copy the task into your project using the following steps:

1. Use Find to locate the task you want to copy, or if you know where the desired task is located, click the plus signs on the folders to navigate to it.

   The assemblies and line items have many abbreviations in their descriptions. Because of this, it is usually easier to locate items by searching for the folder that would contain the task rather than for the description of the task.

   To find out what the abbreviations stand for, enter the abbreviation into the Index tab of the Help dialog box. You can also enter a term in order to find out what its abbreviation is.

For more information on using Find, see Chapter 6. See Chapter 3 for information on using Help.

2. Click on the folder that contains the task so you can see the task in the sheet panel.

NOTE: Make sure the task you want to copy is a task, not a folder. Folders will show a folder icon (or) in the first column in the sheet panel, and tasks will show an assembly ( ) or line item ( ) icon. If you copy a folder, you will not only be copying the folder into your project, but also all of that folder's subfolders and tasks.

3. Copy the task into your project using one the following methods:

- ***Drag and Drop:*** In the sheet panel of the resource window click and hold your left or right mouse button on any field for that task and, still holding down the mouse button, drag to the folder in your project where that task belongs. When the folder where you want to place the task becomes highlighted and your mouse pointer is a hand holding a sheet of paper ( ), release the mouse button. If you use the left mouse button, a confirmation message may open asking if you want to copy the task – click OK to copy the task. If you use the right mouse button, a context menu will open – click *Copy Tasks Here* to copy the task.

NOTE: If the resource window is located on the left side of the screen and you drag the task with the left mouse button, the sheet panel may scroll to the right as you drag. Dragging with the right mouse button, or dragging from the gray box to the left of the task, does not cause the sheet panel to scroll.

- ***Copy and Paste:*** In the sheet panel of the resource window, copy the task as follows:

  - Left-click anywhere on the task. The current record indicator (an arrow) will appear to the left of the task you clicked on. Then either click the *Copy* button on the toolbar , or from the Edit menu choose Copy.

  Then in the Tree Panel of the project, paste the task using one of the following methods:

  - Left-click on the folder in the Tree Panel where you want the task located. Then either click the *Paste* button on the toolbar , or from the Edit menu choose Paste.
  - Or, right-click on the folder in the Tree Panel where you want to paste the task, and from the context menu choose Paste.

  A confirmation message may open asking if you want to copy the task – click OK to copy the task. The task will be added to the folder.

NOTE: You can also use CTRL+C to Copy and CTRL+V to Paste.

4. After you copy a task into your project, if necessary click on the folder that contains the task so that you can see the task in the Sheet Panel. Then enter the quantity in the quantity field.

About Assemblies

In BSD CostLink/AE, an *assembly* is a group of line items that represent all the costs required to accomplish some piece of a project. The quantities for each of the component tasks in the assembly are linked to the assembly quantity. When you copy an assembly into a project and then supply the assembly quantity, BSD CostLink/AE automatically computes the quantities and costs for all of the line items in the assembly.

Example of Use

An assembly representing 6-inch concrete slab on grade includes all the line items required to prepare for, form, pour, and finish the slab. The assembly unit of measure is square feet. The assembly contains the unit costs and quantities of each line item required to construct one square foot of slab.

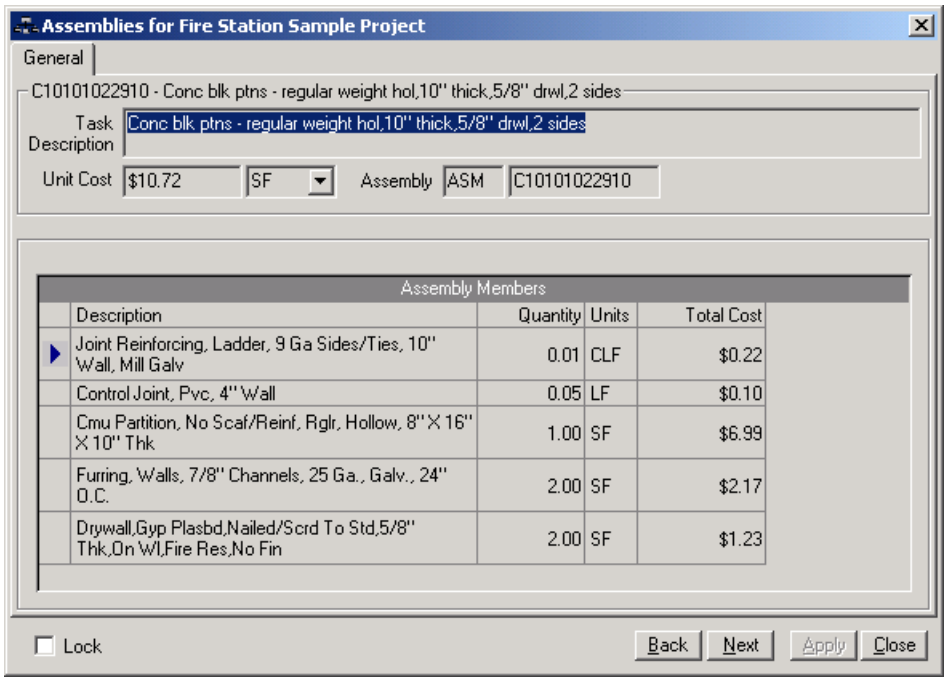
When you copy the assembly into the project, you supply the square feet of slab needed for your estimate. BSD CostLink/AE then computes the total quantities and resulting costs of all the line items in the assembly for slab on grade construction.

How Assemblies Are Stored

In projects and in Assemblies resource windows, assemblies are tasks and can be viewed in the sheet panel. The first column of an assembly in the sheet panel will show an assembly icon . The line items in the assembly can be viewed in the Members grid of the assembly's task item form.

Assembly Task Item Form

The Assembly task item form shows information for the assembly currently selected in the sheet panel. It is similar to the task forms in the project and is opened using the same methods as described earlier in this chapter.



Assemblies resource window task item form

Description

Task Description	Description of the assembly.
Unit Cost	The total cost of 1 unit of the assembly. CostLink/AE calculates this by adding together the Total Costs of the line items listed in the Assembly Members grid.
Unit of Measure	Unit of measure relevant to the assembly as a whole.

Task Type

These fields indicate the original source and type of the task. In order from left to right, the fields are as follows:

Source	ASM for assembly.
Source Tag	Displays a code that is used as a unique identifier for the assembly.

Assembly Members grid

Description	Description of the member task.

Quantity	The quantity of the member per unit of the assembly.
Units	Unit of measure associated with the task.
Total cost	Total cost of the member task per unit of the assembly.

Buttons on the Assembly Form

The buttons on the Assembly form are the same as on the folder item form as described earlier in this chapter, with the exception of the Insert button. New assemblies cannot be added to the Assemblies resource window.

About Line Items

To estimate a piece of the project that is smaller than an assembly, use a line item.

How Line Items Are Stored

Line items are stored in the Unit Prices resource window. They are tasks and can be viewed in the Sheet Panel. The first column of a line item in the Sheet Panel shows a line item icon . The unit price of the line item can be viewed in the Sheet Panel.

NOTE: There are no item forms in the Unit Prices resource window.

Adding Your Own Line Items

If the line item that you need cannot be found in the Unit Prices resource window, add a new line item in your project. Line items can be added for vendor or contractor lump sum quotes for pieces of the project. To add your own line item:

1. In the Tree Panel of your project, click on the folder that should contain the new line item.
2. From the Insert menu, choose Task.

   A New Item is added to the Sheet Panel.
3. Open the item form for the New Item and Enter the Description, Quantity, Unit of Measure, and Unit Cost.

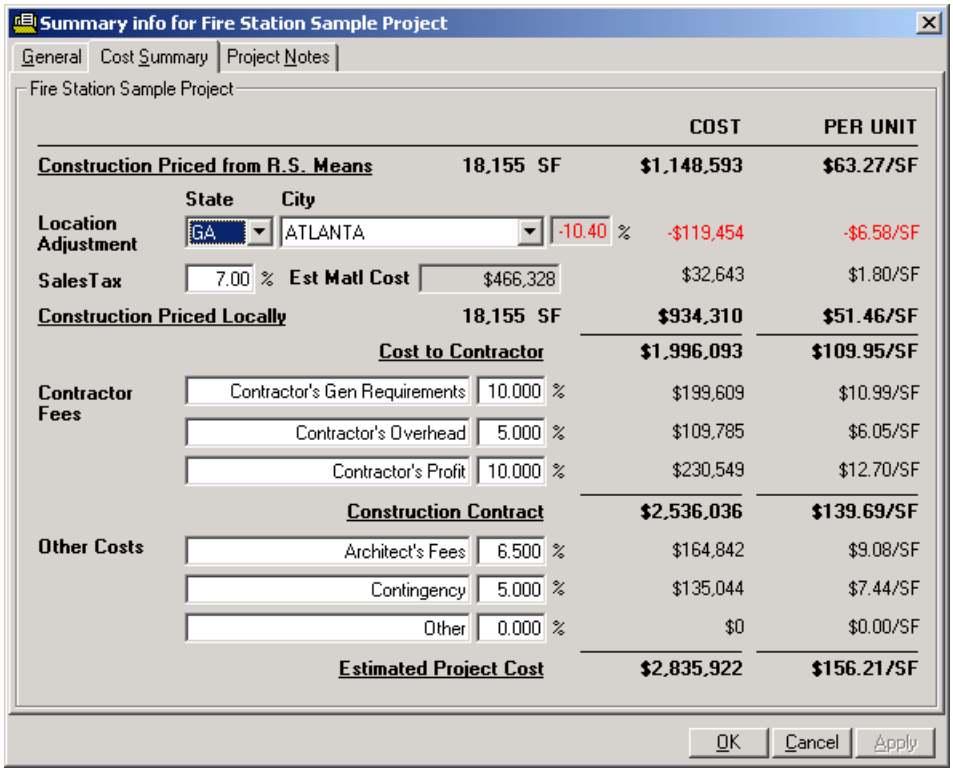
Cost Adjustments and Markups

Cost adjustments and markups are applied to your project using the Cost Summary tab of the Summary Info dialog box. You can apply a Location Adjustment, Sales Tax, up to three types of Contractor Fees, and up to three types of Other Costs.

Using the Cost Summary Tab

Use the following steps to apply and edit markups in your project at any time:

1. Open the Summary Info dialog box by choosing File > Summary Info, or by clicking the *Open the database summary info dialog* button on the toolbar .
2. Click the Cost Summary tab.



Summary Info dialog box, Cost Summary tab

3. Enter the desired information. (See below for an explanation of the fields and tips on entering information.)
4. Click Apply to update the Cost and Cost per Unit fields.

5. Click OK to close the Summary Info dialog box.

6. If necessary, recalculate the estimate ( ) to update the information in the Tree Panel.

About the Cost Summary Tab

The following provides a description of the fields on the Cost Summary tab, tips for entering information into the fields, and an explanation of how the markups are calculated.

Construction Priced from R.S. Means

This line displays the project size and unit of measure that is entered on the General tab, the direct cost for R.S. Means cost items (i.e. the cost prior to adjustments and markups), and then divides the direct cost by the project size to show the project cost per unit.

Location Adjustment

Use this area to adjust the national costs that you copy in from the resource windows for the costs where the project is located. The Location Adjustment and Sales Tax apply to costs copied from resource windows only. ***For more information*** on Location Adjustments, see chapter 1.

State	Click the arrow and then type the first letter of the state abbreviation to scroll to it quickly. Then click on the state abbreviation. The City field updates to the cities in that state. For Canadian locations, select the Canadian Province and then the city.
City	Click the arrow and then type the first letter of the city to scroll to it quickly. Then click on the correct city.
Location Adjustment Cost Columns	The field to the right of the city shows the percentage of the adjustment, positive or negative, that results from the selected city and state. Negative numbers are shown in red with a minus sign. The Cost and Per Unit fields for the Location Adjustment show the total dollar adjustment for the project and per unit.
Sales Tax	Enter the amount of sales tax that should be applied to material costs.
Est Matl Cost	Displays the Material cost of items copied in from the R.S. Means resource windows.

Construction Priced Locally	(The quantity and unit of measure displays from the General tab of the Summary Info dialog box.) The Cost field totals all user-added line items, and divides that total by the Project Size to calculate the Per Unit Cost. **NOTE:** Location Adjustments and Sales Tax do not apply to user added line items.
Cost to Contractor	The Cost and Per Unit columns for this line show the subtotal of the Construction Priced from R.S. Means plus (or minus) the Location Adjustment, plus Sales Tax, plus Construction Priced Locally. **NOTE:** If you change the State, City, or Sales Tax, click Apply to update these values.

Contractor Fees

Use this area to enter up to three types of contractor fees. If desired, edit the existing description or enter a new description for the fee in the first field for each row. This description will print on reports. In the second field for each row, enter the markup percentage.

These markups are compounded, meaning that if the Cost to Contractor is $100,000 and the first markup is 10%, the first markup will be $10,000, resulting in a subtotal of $110,000. If the second markup percentage is also 10%, it will be 10% of the subtotal resulting in a markup of $11,000. The markup percentages are applied to the subtotal of the Cost to Contractor plus the previous markup amounts. If you would like the markups compounded in a different order, reenter them in the desired order.

Construction Contract	Click Apply to update the Cost and Per Unit columns for each fee, and to update the Construction Contract line.

Other Costs

Use this area in the same way as the Contractor Fees area to enter up to three other types of markups such as Architect's Fees or Contingencies.

Estimated Project Cost	Click Apply to update the Cost and Per Unit columns for each Other Cost, and to update the Estimated Project Cost line.

Reports

BSD CostLink/AE provides clean reports for presentation to clients. The Summary report can display costs at the folder level you choose. A Detailed Estimate is also available to itemize the assemblies and line items in your project.

This chapter describes BSD CostLink/AE's reporting capabilities.

- Reports overview
- Reports dialog box
- Report preview
- Report descriptions
- Creating electronic files from reports

Reports Overview

Once the estimate is complete and the markups have been applied, you are ready to print your reports using these steps:

1. If you would like your logo to print on the reports in the top right corner instead of the CostLink/AE logo, save a copy of your logo in the CostLink AE\System\Reports folder with the name logo.bmp, logo.gif, or logo.jpg.
2. When you are ready to run reports, select the reports to run and the level for your Summary report in the Reports dialog box, Select Reports tab.
3. Choose options for the reports on the Preferences tab.

NOTE: Once you have established the report formats for an estimate, CostLink/AE remembers the last settings you used so that you can use the same formats repeatedly. You can make adjustments at any time.

4. Click the Preview button to look over your selections and click the Print button to print the reports.

The options, reports, and methods of producing paper and electronic copies of reports are described in this chapter.

Reports Dialog box

Use the Reports dialog box to choose the reports you want to print and to define settings for those reports.

To open the Reports dialog box:

- With a project open, from the File menu choose *Reports Setup*, or click the *Select and format reports* toolbar button.

Buttons on the Reports Dialog Box

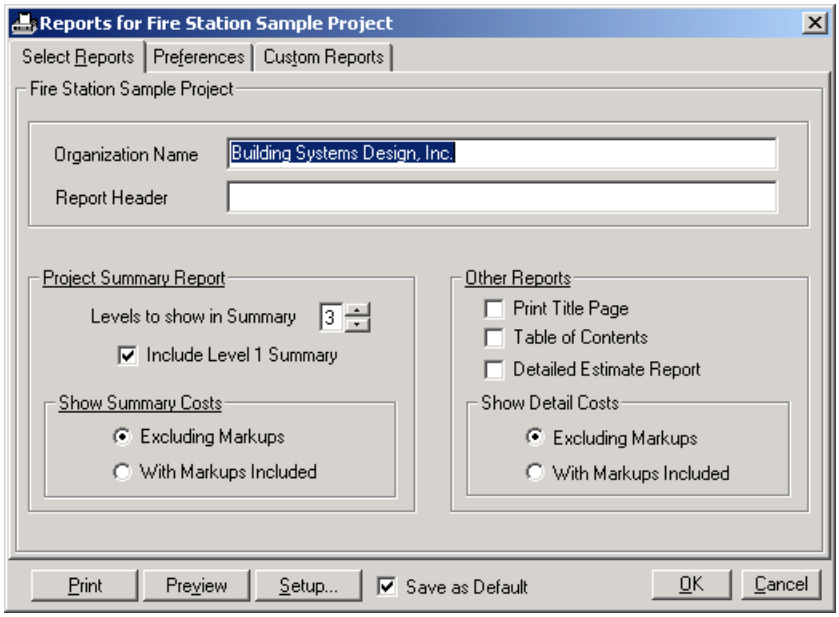
These buttons and controls appear at the bottom of dialog box. Their actions apply regardless of the tab you have selected.

Print	Prints the reports as currently selected and configured (not available on Preferences tab).
Preview	Opens a print preview window showing how the currently selected reports will look when printed on the default Windows printer (not available on Preferences tab).
Setup	Opens the Print Setup dialog box, which you can use to choose a different default printer or change printer settings.

Save as Default	Saves current configuration as default.
OK	Closes the Reports dialog box and saves any changes you have entered, but does not print the reports.
Cancel	Closes the Reports dialog box and cancels any changes you have entered.

Select Reports Tab

Use this tab to select the level of the summary you want to print, and whether or not to print the Detail report.



Reports dialog box, Select Reports tab

For more information on the report types, see "Report Descriptions" later in this chapter.

Organization Name	Name of your company that will appear in the header on reports. **NOTE:** This defaults to the Company Name entered in the Permissions dialog box when the software was installed. To change the default Company Name, close all open projects and from the File menu choose Permissions. Enter the new Company Name and click OK.

Report Header	Enter an optional report description in this field (for example “Estimate at 60%”). It will print as the second line of the header on each page of the report.

Project Summary Report

In this area, select options for the Project Summary Report.

Levels to show in Summary	Select the number of levels of folders that you would like to print in the Project Summary Report. Either click the up and down arrows, or type the number directly in the field.
Include Level 1 Summary	In addition to the report at the number of levels you specified above, you may also print a Project Summary Report that summarizes the Level 1 folders only by selecting this option. **NOTE:** This option is not available if only one level is selected for *Levels to show in Summary*.
Show Summary Costs	Select how you would like Markups shown in the Project Summary Report. If you would like to print the costs before markups for each folder in the summary, and then have the markups added at the end, select *Excluding Markups*. If you would like the costs for each folder to already include the markups, select *With Markups Included*.

Other Reports

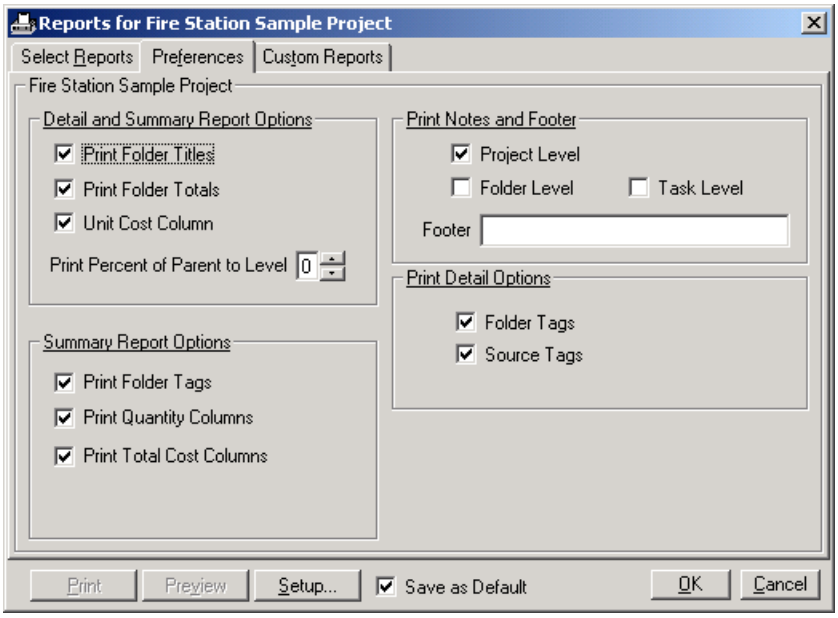
Use this area to select any other reports you would like to print.

Print Title Page	When selected, prints a title page that includes information entered on the General tab of the Summary Info dialog box.
Table of Contents	Check this option to include a table of contents for the report. The table of contents prints last. After you print you can put the table of contents after the title page.
Detailed Estimate Report	Choose this option to print a detail report of the estimate. This report shows the costs for every task and folder in the estimate. See the preferences tab for options on what to include in the costs.

Show Detail Costs	Select how you would like Markups shown in the Detailed Estimate Report. If you would like to print the costs before markups for each task and folder, and then have the markups added at the end, select *Excluding Markups*. If you would like the costs for each task and folder to already include the markups, select *With Markups Included*.

Preferences Tab

Use this tab to choose options that affect how reports are formatted and printed.



Reports dialog box, Preferences tab

Detail and Summary Report Options

Print Folder Titles	Prints the title of each folder on both Detail and Summary Reports.
Print Folder Totals	Prints the subtotals for each folder on both Detail and Summary Reports.
Unit Cost Column	Prints a column showing the Unit Cost for each task and folder on both Detail and Summary Reports.

Print Percent of Parent to Level	Prints a percent at the folder level to indicate what percent this folder represents of its parent folder. To leave the percentage off altogether, set the Print Percent of Parent to Level field to 0. If you set it at level 1, then only the level one folders will display the percent field. This option is for Summary reports only.

Summary Report Options

These options represent additional columns that can be printed for each folder on Project Summary reports. Check an option to include that column.

Print Folder Tags	Choose this option to print the Source Tags for the folders in the Summary Reports.
Print Quantity Columns	Choose this option to print the Quantities for the folders in the Summary Reports.
Print Total Cost Columns	Choose this option to print the subtotals for each folder.

Print Notes and Footer

Project Level	Prints the notes entered in the Summary Info dialog box on the Project Notes tab.
Folder Level	Prints the notes entered on folders in the estimate. This option is applicable to the Detail report only.
Task Level	Prints the notes entered on tasks in the estimate. This option is applicable to the Detail report only.
Footer	Type text in the Footer field that should print at the bottom of every page.

> **NOTE:** The Project Number on the General Tab of the Summary Info dialog box prints on the left side of the footer. If you do not want the Project Number in the footer, leave that field blank in the Summary Info dialog box.

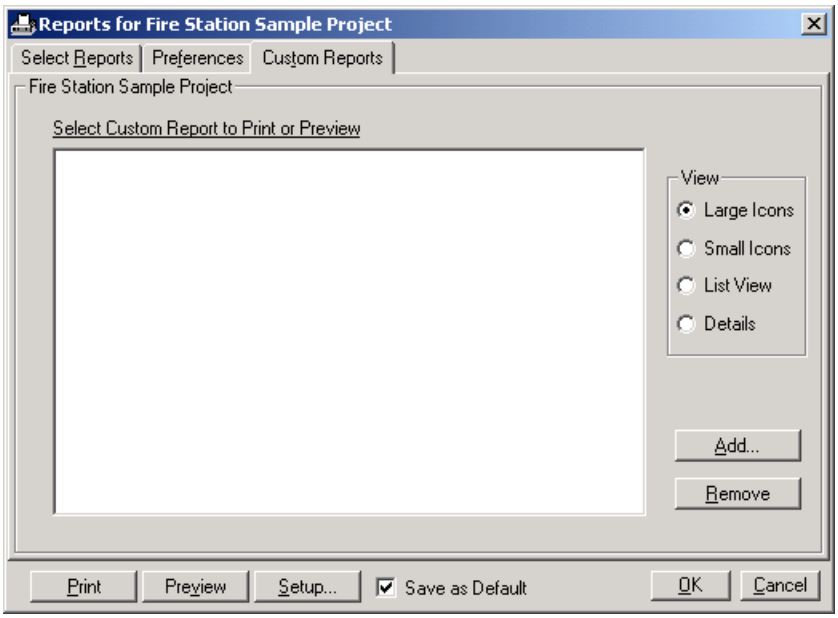
Print Detail Options

These check boxes represent optional columns you can include on Detail reports.

Folder Tags	Choose this option to print the tags or database IDs entered for each folder.
Source Tags	Choose this option to print the source tags (database IDs) associated with each task.

Custom Reports

The Custom Reports tab is used to print custom reports.



Reports dialog box, Custom Reports tab

To modify the existing reports or to create new reports, you will need to use Crystal Reports version 8.5. Once the reports have been modified and/or created, they can be run from the Custom Reports tab.

To print a custom report:

1. Open the Reports Setup window from the File menu.
2. Click on the Custom Reports tab.
3. Click on the Add button.
4. Navigate to the report that you have modified or created, highlight it and then click on the Open button. It will be added to the Custom Reports window.
5. To print it, click on the Print or Preview button.

Once you have printed a report, it will stay in the Custom Reports window, so you will need only to open the Custom Report tab and print the report. If you click on the Remove button in this window, the report is simply removed from the window; it is not deleted.

Report Preview

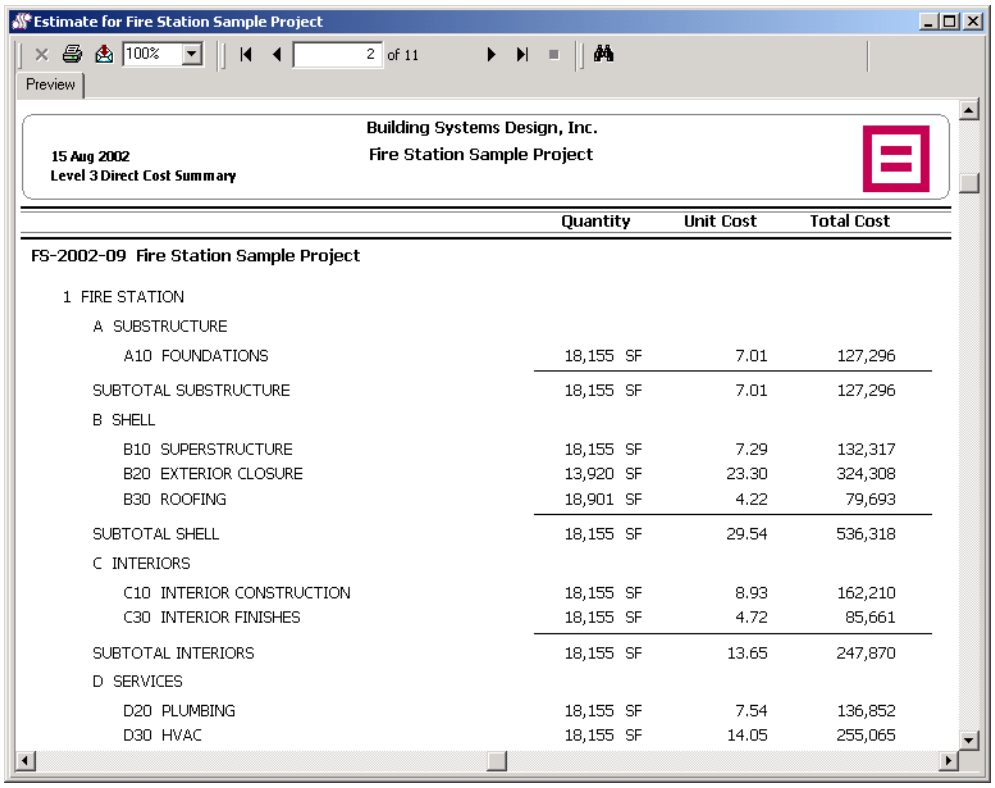
The report preview window shows the currently selected reports as they will look when printed on the selected printer.

NOTE: You must have a printer driver installed on your computer in order to preview reports.

Displaying the Window

You display the preview window by clicking Preview on the Reports dialog box.

NOTE: If the preview is too small, maximize the preview window using the Maximize button in the upper right, and/or zoom in using the zoom selector 100%.


Estimate for Fire Station Sample Project
100%
2 of 11
Preview
Building Systems Design, Inc.
15 Aug 2002
Fire Station Sample Project
Level 3 Direct Cost Summary
Quantity Unit Cost Total Cost
FS-2002-09 Fire Station Sample Project
1 FIRE STATION
A SUBSTRUCTURE
A10 FOUNDATIONS 18,155 SF 7.01 127,296
SUBTOTAL SUBSTRUCTURE 18,155 SF 7.01 127,296
B SHELL
B10 SUPERSTRUCTURE 18,155 SF 7.29 132,317
B20 EXTERIOR CLOSURE 13,920 SF 23.30 324,308
B30 ROOFING 18,901 SF 4.22 79,693
SUBTOTAL SHELL 18,155 SF 29.54 536,318
C INTERIORS
C10 INTERIOR CONSTRUCTION 18,155 SF 8.93 162,210
C30 INTERIOR FINISHES 18,155 SF 4.72 85,661
SUBTOTAL INTERIORS 18,155 SF 13.65 247,870
D SERVICES
D20 PLUMBING 18,155 SF 7.54 136,852
D30 HVAC 18,155 SF 14.05 255,065

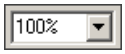
Preview of summary report, with logo added as described later in this chapter

Actions

The report window has a toolbar with the following buttons:

	Close current view. Available for drill-down only. See below.
	Prints the report to the default Windows printer.

Opens the Export dialog box, which allows you to export the report in different formats. See *Creating Electronic Copies of Reports* later in this chapter.



Click the down arrow to zoom in or out.

Go to the first page of the report.

Go to the previous page.

Type the number of the page you want to view and press Enter.

Go to the next page.

Go to the last page. Click this button to compute and display the number of pages in the report.

Search text. Click this button to open a Search dialog box. Enter text and click Find Next. Matching text on the current page will display with a red selection box around it.

The standard Windows Minimize and Maximize buttons can be used. Use the Close button ( ) to close the preview without printing.

Drill-Down Tabs

Double-click on any title to create a drill-down tab that includes that title and its subtitles and details. The tabs are for on-screen viewing only; they do not affect printout.

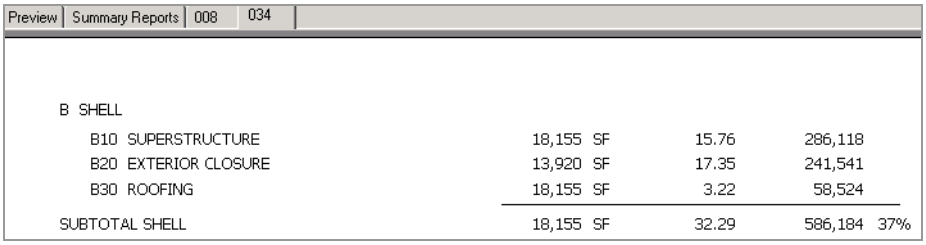
To create a drill-down tab:

1. Preview a report.
2. Double-click anywhere on the report.

   An Estimate Detail or Summary Reports tab is created.
3. Double-click on a title on the Estimate Detail or Summary Reports tab.

   A tab is created that shows the title you double-clicked on and its subtitles and details.

To create more drill-down tabs, click on the Estimate Detail tab and repeat step 3.



Preview window with drill-down tabs

To remove the drill-down tabs, click the *Close Current View* button .

Report Descriptions

BSD CostLink/AE produces a detailed cost report and a presentation-style summary report.

Project Summary

The Project Summary Report summarizes cost information at each folder in an estimate, and does not list the tasks. Choose to include the markups in the costs for each folder, or to print the direct costs for each folder with the markups listed at the end. Select the level of breakdown using the Select Reports tab.

Detailed Estimate Report

The Detailed Estimate Report provides a complete listing of all tasks in an estimate. The costs are totaled at each folder in the estimate, with the tasks and their totals listed below each folder. Specify the formatting of this report using the Preferences tab of the Reports dialog box. The Detailed Estimate Report can print the notes you attach to tasks and folders if you select the *Folder Level* or *Task Level* options in the Preferences tab of the Reports dialog box.

The detail report contains the following information:

- Quantity, Unit of Measure, Unit Cost, and Total Cost for each task
- Markups “Tail” at the end of the report, adding the Contractor Fees and Other Costs (optional)
- Detail costs as either Cost to Prime (Excluding Markups, the default) or Total Project Cost (Including Markups), using the Show Detail Costs options on the Select Reports tab
- Assemblies as a single task, rather than line listing each assembly member
- Folder Tags and/or Source Tags (optional)
- Notes added to folders and/or tasks (optional)

Inserting Your Company Logo

Customize your reports by inserting a logo in the upper right corner of the reports. When you do not have a logo, the time that you printed the reports prints in the upper right.

To insert a logo, save a copy of the logo in your CostLink AE\System\Reports folder with the name logo.bmp, logo.gif, or logo.jpg and print the report(s).

Creating Electronic Copies of Reports

Reports can be exported to a number of file formats using the Export button in the Print Preview window . Exported files can be emailed to individuals who do not have CostLink/AE, saved as archive copies of estimates, published on websites, or edited.

NOTE: If someone wants you to email an electronic copy of the estimate and they have CostLink/AE, you can use the File > Save to Compressed feature (described in Chapter 6) to create a zipped file that you can attach to an email. They can then open the estimate in CostLink/AE, make edits, and send it back.

Some of the more popular export options include:

- Adobe Acrobat Portable Document Format (PDF) - can be opened and viewed in Acrobat Reader which can be downloaded for free from Adobe Acrobat's website www.adobe.com. PDF files can be minimally edited in the full version of Adobe Acrobat which is available for purchase at the same website.

NOTE: If you own the full version of Adobe Acrobat, you can choose Acrobat as your printer in the Print Setup dialog box (available on the File menu). Print to the Acrobat printer to generate pdf files instead of using the Export button in the Preview window.

- Excel (XLS) - can be opened and edited in Microsoft Excel. Formulas do not export, just text and dollars.
- Rich Text (Exact) Format - can be opened and edited in any word processor except WordPerfect 5.1.
- Word for Windows Format - can be opened and edited in Microsoft Word.

Tools and Techniques

This chapter describes tools and techniques to help you work more efficiently and productively.

- Use Find
- Work with notes and pictures
- Techniques for copying and moving folders and tasks
- Delete empty folders
- Copy projects
- Compact databases
- Save and load in compressed format
- Customize Tools menu
- Update to the current RS Means database

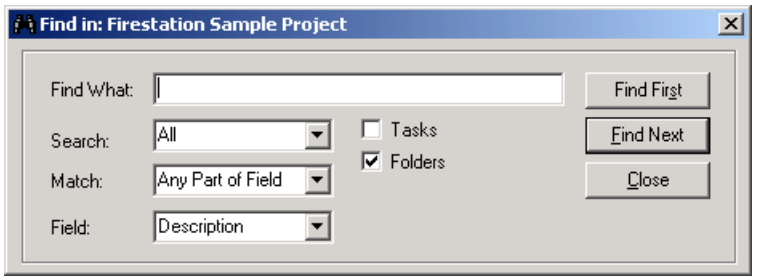
Using Find

Use Find to search for folders and tasks in resource windows and in projects. The tasks in the resource windows contain many abbreviations. Because of this, it is often easier to search for the folders that would contain the tasks, rather than for the specific task. A complete list of the abbreviations and their meanings is provided in Appendix B. You can also type the abbreviation into the Index tab of the Help dialog box in order to find the term. Or you can type a term in order to find its abbreviation.

For more information on Help, see Chapter 3.

Find Dialog Box

To open Find, from the Edit menu choose Find or click the Find button on the toolbar .



Find dialog box

Find What — Enter the word(s) you expect to find in the task or folder description exactly as you expect it to be spelled. It is not case sensitive.

Search — Choose an option to search:

All: searches the entire database starting at the beginning
Up: in conjunction with Find Next, searches from your current position to the beginning
Down: in conjunction with Find Next, searches from your current position to the end

NOTE: To search from your current position to the end for tasks: 1. Click on a task in the sheet panel; 2. Open the Find dialog box; 3. Enter your search criteria; 4. Change the Search option to Down; 5. Click Find Next.

Match	Select the portion of the field that must match the Find What string. The options are: Any Part of the Field, Whole Field, or Start of the Field.
Field	Select to search the Description or Source Tag field.
Tasks/ Folders	Select one or both options to search for - tasks, folders, or both.
Find First	Click this button to find the first item matching your criteria, based on your selection in the Search field.
Find Next	Click this button to find the next item after finding the first.
Close	Closes the Find dialog box.

To search using the Find dialog box:

1. If you have more than one window open, click in the window that you want to search.
2. From the Edit menu choose Find, or click the Find toolbar button .

   The Find In dialog box opens.
3. Fill in the fields as described above.

NOTE: Find searches for exact words. If you misspell a word, Find probably will not find it.

4. Click the Find First button if the Search option is set to All. Other wise click Find Next.

   BSD CostLink/AE performs the search and highlights the first found item in the sheet panel by placing an arrow to the left of it ( ) if it is a task. If the first found item is a folder on the tree, it opens the folder.

NOTE: If a message opens reporting that “The search item was not found,” check the following:
- Verify the Find title bar says it is searching the correct window;
- Verify that the Find What field has no typos;
- Verify that Field is set correctly;
- Verify that Tasks or Folders is set correctly.

If all is correct, try different words in the Find What field.

5. If the correct item is located, click Close. If it is not the correct item, click Find Next.

Working with Notes and Pictures

You can attach text notes and pictures to any folders and tasks in a project. When a folder or task has a note or picture attached, a cyan indicator is added to the bottom left of the folder or task icon: , , or .

NOTE: See Chapter 4 for entering project-wide notes using the Summary Info dialog box.

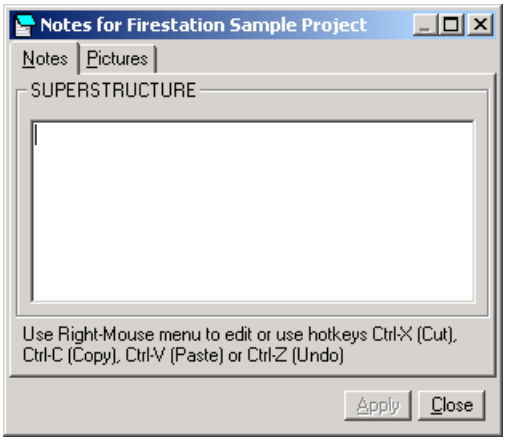
Attaching Notes or Pictures to a Folder or Task

Within a project, use the Notes form to attach text notes or pictures to individual tasks or folders. The text notes can be printed on the detail report. The pictures are for display in CostLink/AE only, and cannot be printed.

To attach text notes to a task or folder:

1. Click on the task or folder in the sheet panel.
2. Choose View > Notes Window, or click the *Open the Notes form* button on the toolbar .

   The Notes form opens. The name of the folder or task that you clicked on is displayed above the white note area.



Notes form, Notes tab

3. On the Notes tab, type the Notes you want to attach or use CTRL+V to paste text from the Windows clipboard.

4. Click on another task or folder to enter another note. You do not need to Apply or Close before clicking on another task or folder.
5. Click Close when finished.

To attach pictures to a task or folder:

1. Display the Notes form as above (steps 1 and 2).
2. Click the Pictures tab.
3. Click New.

   BSD CostLink/AE opens the Load New Picture dialog box.
4. Use the dialog box to select the picture file and click Open.

   The picture is displayed on the tab. Use the field to the right to name the picture.
5. Repeat step 3-4 to add more pictures to the same task or folder. Use Back and Next to navigate through the pictures.
6. Click on another task or folder to enter a picture on a different folder or task
7. Click Close when finished.

Supported Graphics File Types

BMP and JPG file types can be attached as pictures to a CostLink/AE task or folder.

Viewing Notes and Pictures on Tasks or Folders

When you see the cyan note icon on a task or folder, click on the folder or task and then display the notes form as described above. To view the note on another folder or task, leave the form open and click on the folder or task.

Printing Notes with Reports

You can choose to print text notes on the Detail Report of an estimate.

To print notes on reports:

1. Choose File > Reports Setup.
2. Click the Preferences tab.
3. In the Print Notes and Footer area, select the types of Notes you want to print.
4. Click the Select Reports tab and click Print or Preview, or click OK to exit.

Techniques for Copying and Moving

Tips and techniques for copying and moving tasks and folders in BSD CostLink/AE are described below. Much of this information involves standard mouse and keyboard operations for the Microsoft Windows operating systems.

Using the Standard Windows Cut, Copy, and Paste Commands

To move or copy tasks or folders from one location to another, use the standard Windows Cut, Copy, and Paste commands. These commands are available as buttons on the toolbar, in the Edit menu, and in context menus when you right-click.

You can also cut, copy, or paste text in fields in item forms or while in edit mode on the name of a folder or task. To enter edit mode in the Tree Panel, click once on the name of a folder and then click again. In the Sheet Panel, click once on the name of a task or folder. When in edit mode the background of the text is blocked and a right click results in a context menu that contains only Cut, Copy, Paste, and Delete.

When cutting or copying tasks (not just the description text) in the Sheet Panel, first select a task by clicking the selector box to the left of the item in the Sheet Panel so that the whole record is selected before using the commands from the Edit menu or the toolbar. You can select all the tasks in the Sheet Panel using Edit > Select All Tasks. Or you can select multiple tasks using CTRL and Shift as described later.

You can move and copy tasks and folders by dragging them with your mouse. If you drag with the right mouse button you get additional options as described later.

Be aware that when you cut an item, it may not disappear immediately from view. This is because BSD CostLink/AE does not automatically refresh the display when you Cut. If you close the window and reopen it, the cut item will be gone. Be sure to Paste the Cut item before you close the window.

Shift-Click and Ctrl-Click

Select folders and tasks in the Tree Panel or Sheet Panel by clicking the left (or primary) mouse button. In the Sheet Panel, hold down the Shift and Ctrl keys in combination with clicking to select multiple tasks:

- Click on the selector box to the left of the first task with the left mouse button, and then hold down Shift while you left-click on the selector box for the last task to select a continuous range of tasks.
- Click on the selector box to the left of the first task with the left mouse button, and then hold down Ctrl while you left-click on additional tasks to select multiple tasks not in a continuous range, or to remove the selection from a group of selected tasks.

These commands work the same as in standard Windows programs, such as Windows Explorer.

Dragging and Dropping

Drag and drop is a powerful tool for copying folders and tasks in BSD CostLink/AE. You can drag and drop items between the Tree or Sheet Panels of different windows.

When you drag an item to a position where you are allowed to drop it, BSD CostLink/AE changes the mouse pointer to a hand with a page:

Effects of Dragging and Dropping

The *default* effect of dragging and dropping with the left mouse button depends on the situation as follows:

When You Drag and Drop…	**Then BSD CostLink/AE…**
from a resource window to a project	*copies* the item(s)
within the same window **Example:** You copy an assembly from the Assembly Resource window into your estimate.	*moves* the item(s) **Example**: You move tasks from one folder to another in the estimate.

Left-Click and Right-Click for Drag and Drop

When you drag and drop using the left mouse button, BSD CostLink/AE performs the default operations as listed in the table above. In most cases, BSD CostLink/AE allows other options besides the default. You can access these options by dragging with the right mouse button instead of the left. In this case, when you release the right mouse button to drop the item(s), BSD CostLink/AE opens a context menu with the available options. The default option (the one that would happen if you dragged with the left) is shown in bold.

Tip: While learning to use BSD CostLink/AE, drag and drop using the right-mouse button. This helps you learn the effects of drag and drop in different situations.

Turning off the Confirmation Prompt

By default, BSD CostLink/AE prompts you to confirm before completing any drag and drop operation. You may turn this off from the Tools menu by choosing *Prompt before completing Drag*. When the option is turned on, there is a checkmark next to the command.

Deleting Empty Folders

In your project, use Delete Empty Folders to remove folders that have no tasks.

1. Choose Tools > Delete Empty Folders.

   BSD CostLink/AE prompts you to confirm the command.

2. Click OK.

   BSD CostLink/AE deletes the empty folders in the project except those at Level 1. To delete any empty Level 1 folder, right-click on the folder and choose Delete.

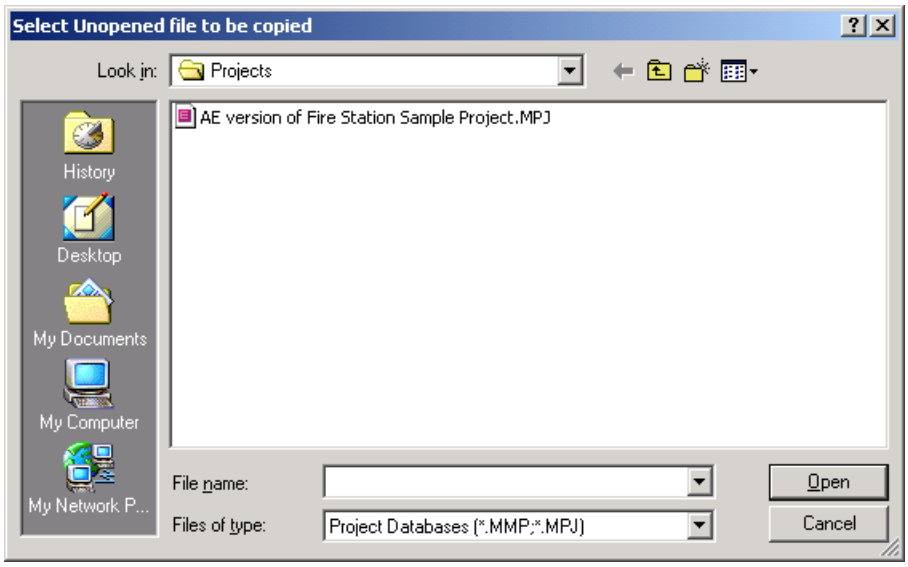
Copying a Project

Use the Copy command in the File menu to copy a project database to a different name or location.

To copy a project:

1. Make sure the project you want to copy is *not* open.
2. Choose File > Copy.

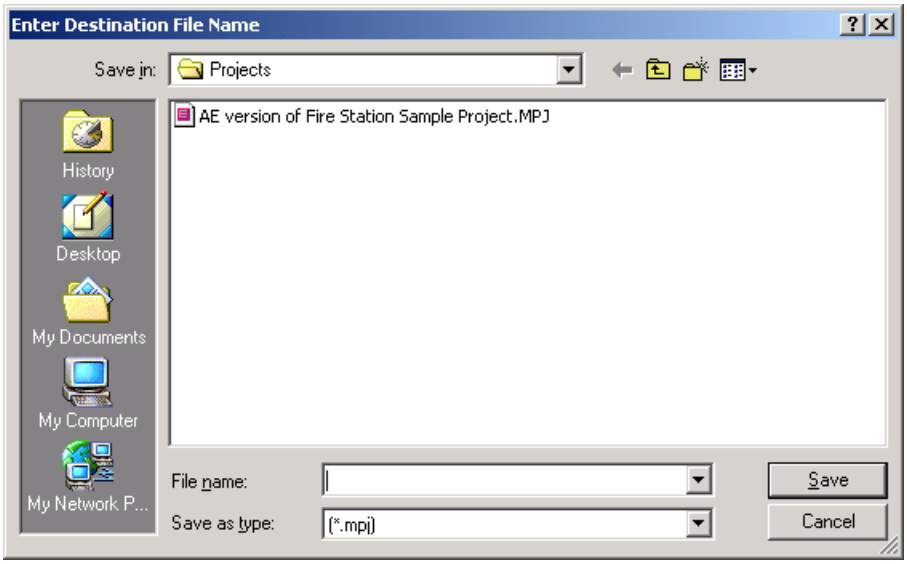
   The Select Unopened File to be Copied dialog box opens.



The Select Unopened File to be Copied dialog box

3. Locate the project to be copied. Double-click the project, or click once and click Open.

   The *Enter Destination File Name* dialog box opens immediately in the same location as the previous dialog box. It looks just like the *Select Unopened File to be Copied* dialog box except that it has a **Save** button instead of **Open**.



Enter Destination File Name dialog box

4. In the File name field, type the new name for the copied database. To save it in a different location, navigate to a different folder.
5. Click Save.

   A confirmation message opens when the copy has been made.

File Copy Completed
File 'C:\CostLink AE\Projects\AE version of Fire Station Sample Project.MPJ' successfully copied to 'C:\CostLink AE\Projects\Fire Station.mpj'
OK

File Copy Completed message

6. Click OK.

NOTE: The new copy will not be listed in the Recently Used dialog box because you have never had it open. To open the new copy of the project, choose File > Open > Open Project Database, or in the Recently Used dialog box click the Browse button.

Compacting a Database

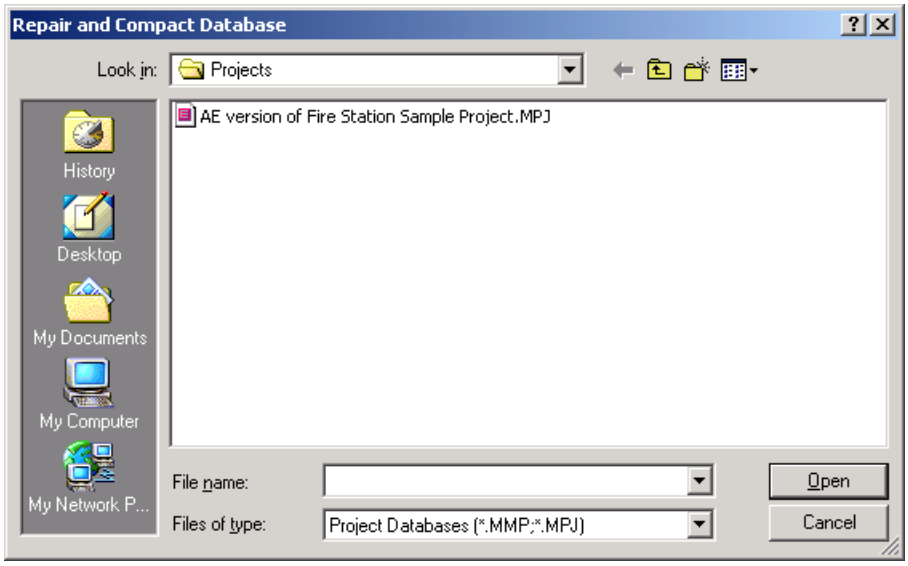
Use Compact Database if you have projects that CostLink/AE cannot open or that produce unexpected errors. This can happen if the file size becomes very large or if the file is corrupted by an abnormal system shutdown, such as a power failure. Compact also reduces the file size of your project.

NOTE: It is a good idea to Compact your project before using Save to Compressed.

To Compact a project:

1. Close the project you want to Compact. If you are using CostLink/AE over a network with a multi-user license, make sure no one else has the project open.
2. From the File menu choose *Compact Database*.

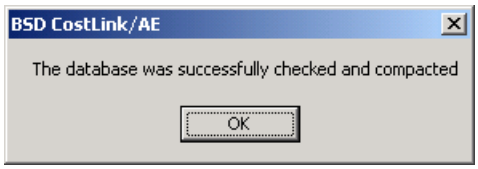
   The Repair and Compact Database dialog box opens.



The Repair and Compact Database dialog box

3. Navigate to and select the project to be compacted.
4. Click Open.

   BSD CostLink/AE repairs and compacts the project and opens a confirmation message when finished.



Repair and Compact confirmation message

5. Click OK.

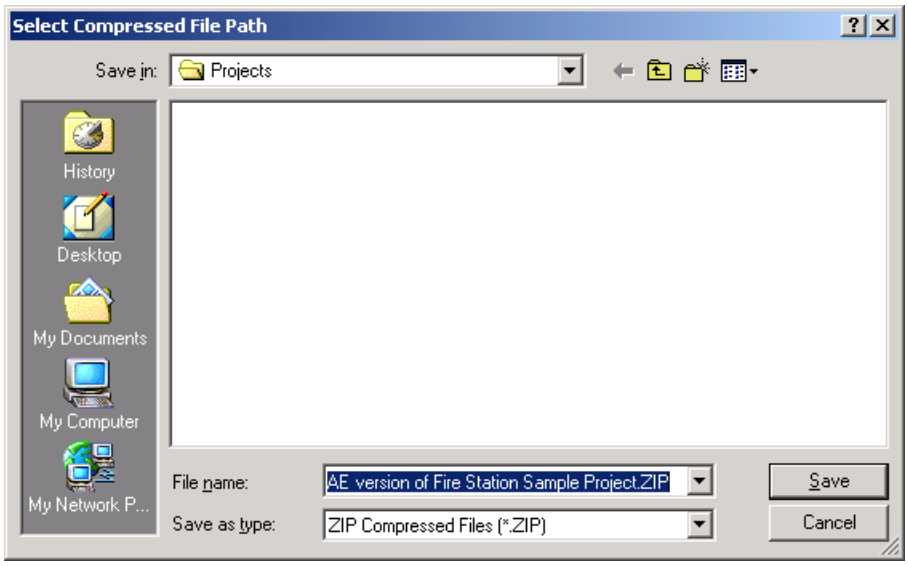
Saving and Loading Compressed Files

Use *Save to Compressed* and *Load from Compressed* to archive projects in compressed format, or to retrieve previously archived projects. You can save projects to compressed format in order to email them to someone who has CostLink/AE.

To save a project in compressed format:

1. Open the project you wish to save to compressed format.
2. From the File menu choose *Save to Compressed*.

   The Select Compressed File Path dialog box opens with a name automatically assigned in the File Name field.



Select Compressed File Path dialog box

3. If desired, change the file name and/or select a different folder to save the file to.
4. Click Save.

   BSD CostLink/AE saves a copy of the project in compressed format and informs you when processing is complete.

To extract a compressed project:

1. Choose File > Load from Compressed.

   The Select Compressed File Path dialog box opens.
2. Use the dialog box to select the compressed project you want to extract. Click Open.

   The Select Project Database File Path dialog box opens.
3. Use the dialog box to navigate to the drive and path where the file should be placed, and then click Save.

   BSD CostLink/AE extracts the compressed database to the selected drive and path and then opens it.

NOTE: If a project of the same name exists in the folder, BSD CostLink/AE prompts you to confirm overwriting it. You can overwrite the file, place the new file in a new location, or Cancel.

Customizing the Toolbars

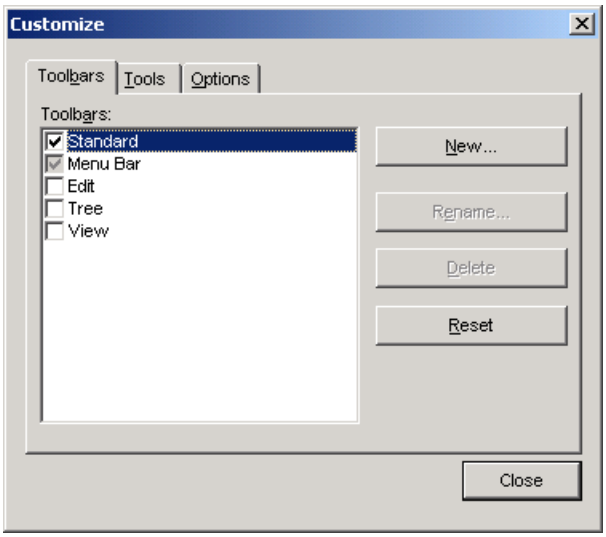
Use the Customize dialog box to change the buttons on the toolbars.

NOTE: For a comprehensive list of the default toolbar buttons and menu commands, see Appendix A. The following directions are for customizing the existing toolbars. You can create new toolbars by clicking the New button on the Toolbars tab.

To customize a toolbar:

1. From the View menu choose Toolbars, and then choose Customize.

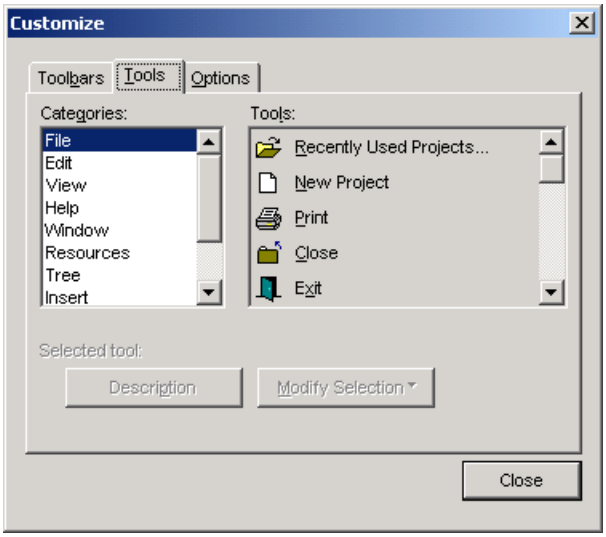
   The Customize dialog box opens.



Customize dialog box, Toolbars tab

2. Click the Tools tab.

   This tab shows all of the available tool commands, in each category. The categories are derived from the CostLink/AE menus.



Customize dialog box, Tools tab

3. Select a Category of tools to change the tools listed in the Tools area.

   To find out what a tool does, click on the name of the tool and then click *Description*.

4. To add a tool to a toolbar, drag the tool from the Tools area and drop it on any toolbar at the top of the BSD CostLink/AE window. Before you drop the tool, you will see a vertical line between the two existing buttons where your new tool will be placed.

   To remove a tool from a toolbar, drag it from the toolbar and drop it on the Tools tab.

NOTE: You can also add these tools to the menus. Instead of dragging the tool to a toolbar, drag the tool to the menu you would like to place it in, hold your mouse over the menu and the menu will open. Then move the tool to where you would like it listed.

5. If you want to change other display options for the toolbars (for example, displaying larger icons), click the Options tab and make your selections.
6. Click Close to close the Customize dialog box.

NOTE: Reinstalling the current version or installing a new version of CostLink/AE will remove your customization. You will need to customize again after installing.

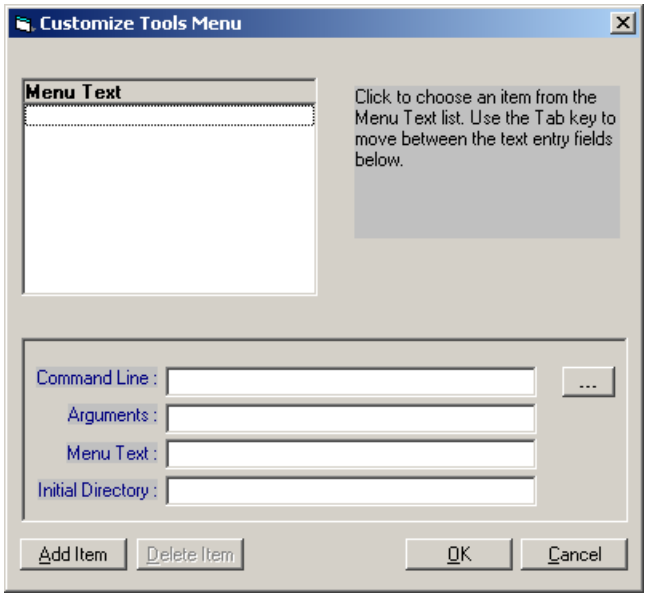
Customizing the Tools Menu

Use *Customize Tools Menu* to add new commands to the Tools menu. The commands you add must be executable programs recognized by the Windows operating system.

To add a command to the Tools menu:

1. From the Tools menu choose *Customize Tools Menu*.

   The Customize Tools Menu dialog box opens.



Customize Tools Menu dialog box

2. To add the first item, click the Command Line browse button .

   The Select Command Line dialog box opens.

3. Use the dialog box to select the executable file for the program you want to start from the Tools menu.

4. In the Menu Text field, type the name you want the command to have in the Tools menu. For example, if you were adding a command for opening your timesheet you might make the Menu Text *Open Timesheet*.

5. If you want the program in the Command Line to open a particular file, also fill in the Arguments and Initial Directory fields (otherwise leave them blank). For example, if you were adding a command for opening your timesheet, you would fill in the Arguments field with the filename of the timesheet (i.e. *timesheet.xls*) and the Initial Directory field with the location of the timesheet (i.e. *X:\Administrative Files*).

6. Click Add Item.

7. Click OK.

   BSD CostLink/AE adds the command to the Tools Menu. Choose the command from the Tools Menu to launch the executable program.

To delete a command from the Tools menu:

1. From the Tools menu choose *Customize Tools Menu*.

The Customize Tools Menu dialog box opens.

2. In the Menu Text area, click on the command you want to delete.
3. Click the Delete Item button. Then click OK.

Example

You might want to create a command called *Calculator* to launch the Windows calculator. Since no other file needs to be opened when you open the calculator, you would leave the Arguments and Initial directory fields blank, and fill in the Command Line and Menu Text fields as follows:

Command Line	`C:\Windows\calc.exe`
	`(or on a Windows NT or 2000 computer, you would choose C:\WINNT\System32\calc.exe)`
Menu Text	`Calculator`

About Updating to the Current RS Means Database

Your subscription to CostLink/AE includes annual updates of the RS Means database. These updates are delivered in the Spring of each year. The new database will be installed automatically when you install the Spring version of CostLink/AE.

If you use the CostLink/AE templates to create new projects, your new projects will automatically use the newest RS Means database. Any projects that you have created previously, and any copies you make of those projects, will continue to use the older RS Means database unless you choose to update the project to the current database.

To determine which database your project is using, open the project, then from the File menu choose Summary Info. The RS Means database section will display the name of the currently referenced database.

When you change to the newest RS Means Database for any given project, the Location Adjustment Factor will also change to the newest Location Adjustment Factor. There can be only one Location Adjustment Factor applied in any individual project, and it will be the one that is appropriate for the currently referenced RS Means database.

NOTE If your project was created using a cost model, you will not be able to switch it from one year to another. If you need to update the costs in a project that was started with a model, you can copy the project folders from the model project into a non-model project and then update the costs in the non-model project.

Updating Options

There are two separate functions related to changing from one RS Means database to another. One is switching the database for the addition of future cost items in the database. The second is repricing the existing cost items to the new RS Means database. You can change to the newest RS Means database for the addition of future cost items and leave the existing cost items with the older pricing. Or you can switch to the newest RS Means database for the addition of future cost items and reprice your existing costs to the newest RS Means database.

NOTE: If you want to keep an archive copy of your project before it is changed, make a backup of your project, either using Windows Explorer, or by using the Copy command in the File menu. You can also use the Save to Compressed function in the File menu.

Change RS Means Database

To switch an existing project to the newest RS Means database so that you can copy items from the newest database, do the following:

1. Open the project.
2. From the Tools menu choose *Change RS Means Database*.

   A message opens asking, “Do you wish to change the RS Means database from the Year [old year] to the Year [new year].”
3. Click Yes to change to the new database.

   A message will open asking, “Changing the RS Means Database for this Project will update the location index and may cause your Project costs to change accordingly. Do you want to also update pricing for existing project items? Click Yes to CHANGE the RS Means Database AND to UPDATE your existing costs. Click No to CHANGE the RS Means Database, BUT leave the existing costs UNCHANGED. Click Cancel to leave the existing RS Means Database AS IS.”
4. Click Yes, No, or Cancel depending on which you want to do.

Once you have changed your project to the 2014 RS Means Database, you **cannot** change it back to 2013.

Note: If you are trying to change a database from one year to a year more than one year later, you must step through each year one by one. If you have a project created with the 2012 Means database and want to change it to use the 2014 Means database, you must first change it to use the 2013 database and then you can change it to use the 2014 database.

Update to RS Means Database

If you have changed to a different RS Means Database, but have not updated the costs for the existing RS Means cost items by clicking No in step 4 above, use *Update to RS Means Database* to update the existing costs.

To use *Update to RS Means Database:*

1. Open the project you want to update.
2. From the Tools menu choose *Update to RS Means Database*.

   A confirmation message will open saying, "Do you wish to UPDATE the costs for all RS Means items in this Project to the [current year] RS Means Database?"
3. Click OK to proceed or click Cancel to cancel the operation.

   If you click OK, the project will close and reopen after repricing the cost items.

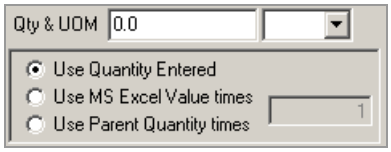
Linking

This chapter contains information and directions for linking quantities on folders and tasks to the quantities of higher-level folders, or to an Excel workbook, so that you can easily change the cost of the estimate based on the size of the project. See the following topics:

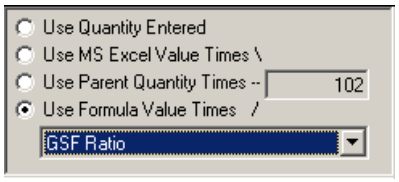
- Linking to parent in CostLink/AE
- About linking to Excel
- Setting up Excel for linking
- About parameter workbooks
- About aecLinkMan
- Excel features used in linking
- Directions for linking to Excel
- CostLink/AE commands for linking

Quantity Options

CostLink/AE has three options for entering the quantity on folders and tasks, plus a fourth method that is used when the estimate is based on a model.



Quantity options for folder



Quantity options for tasks (shown for models template)

- **Use Quantity Entered:** This is the default (except for task quantities established by a cost model). Select *Use Quantity Entered* to enter the quantity for this task in the Item Form or in the Sheet Panel.
- **Use MS Excel Value Times:** This option is selected automatically when you link your quantities to an Excel spreadsheet. You can multiply the value from the Excel spreadsheet by a number or decimal. See *Linking Estimates to Excel Workbooks* in this chapter for directions.
- **Use Parent Quantity Times:** Use this option to calculate the quantity for this item based on the quantity of the parent folder. You can multiply the value of the quantity of the parent quantity by a number or decimal. See *Linking to the Parent Quantity* in this chapter for directions.
- **Use Formula Value Times:** This is the default for task quantities when a model is being used as the basis for the cost estimate. You cannot select this option, and when you choose one of the other quantity options for a particular task, the task is permanently disconnected from the model and cannot be reconnected.

When *Use MS Excel Value Times* , *Use Parent Quantity Times* , or *Use Formula Value Times* is selected, the task or folder icon will have a green square Excel symbol in the upper right corner. When the *Use MS Excel Quantity times* option is selected, the icon will also have a cyan note indicator in the bottom left since the link to Excel automatically adds a note as described later in this chapter. The icons are as follows: , , and .

When linked to Excel, the Parent Quantity, or a model, the quantity field in the Sheet Panel and in the Item Form will be grayed out.

Linking to the Parent Quantity

CostLink/AE allows the quantities of folders and tasks to be linked to the quantities of the folders that contain them. The folder that contains a folder or task is considered the parent, and the subfolder or task is the child. On the subfolder or task, enter a value by which to multiply the quantity of the parent folder in order to calculate the quantity of the child. When you change the quantity of the parent, the quantity of the child will be changed also.

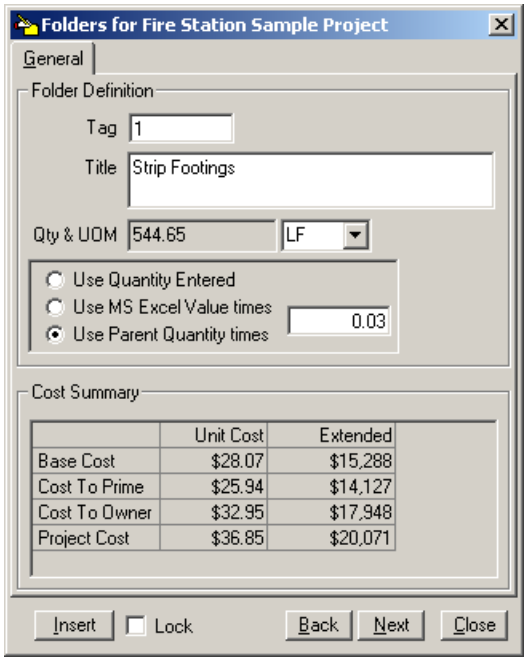
Example

In the Fire Station Sample Project, the Standard Foundations folder contains a Strip Footings folder. Standard Foundations is the parent and Strip Footings is the child. The indentation of Strip Footings under Standard Foundations represents the parent-child relationship.

Standard Foundations and Strip Footings as example of parent and child folders

The Standard Foundations folder has a quantity of 18,155 square feet (SF). Based on similar projects, there will be about 30 linear feet (LF) of strip footings for every 1,000 SF of standard foundations. Instead of calculating and entering the quantity of strip footings, the Strip Footings folder quantity can be linked to the parent folder times 0.03.

To do this, open the folder item form for Strip Footings either by double-clicking on it or by right-clicking and choosing *Edit Folder*. Then select the option *Use Parent Quantity times*. The field to the right of that option turns white and has a default value of 1. Enter .03 in the field. The Quantity is calculated and shown in the Quantity field.



Strip Footings folder set to Use Parent Quantity times 0.03

Now if the quantity of Standard Foundations needed for this estimate changes, the linear feet of strip footings will change accordingly. You would also link the quantities of the tasks under the strip footings folder to their parent, Strip Footings, so that their quantities would change, changing the cost of the estimate.

This is useful over the life cycle of a single estimate. Early in the design, the plans may be for a certain size building. As the plans become more definite, the size may change many times. Instead of recalculating and re-entering every quantity, if you have linked the tasks and subfolders to their parents, you may only need to change the quantities of a few folders at the top of the estimate.

This is also useful in the rapid preparation of budgets, what-if analyses and progress estimates. Linked folders and tasks can also be copied from one estimate to another, enabling you to quickly reuse work from a previous, similar estimate.

See Also *Commands For Linking* at the end of this chapter for additional linking options.

Linking Estimates to Excel Workbooks

CostLink/AE includes the ability to link to data in Excel 2000 (version 9.0) and higher.

NOTE: You must have version 9.0 (Excel 2000) or higher of Microsoft Excel in order to use the linking feature. **Linking to Excel is not available using Windows 7 or later.**

Using this ability, you can maintain "models" within Excel spreadsheets that require only parameter changes in Excel to fill the quantity fields in a CostLink/AE project. Both folder and task quantities in CostLink/AE can be linked to cells in an Excel workbook.

You can create a CostLink/AE project that you will use as a template to create new projects. The template would have links to an Excel model template that you maintain in parallel with the CostLink/AE template. You can make copies of the Excel model template to link to projects made on the CostLink/AE template. When you edit the parameters in the model spreadsheet, the changes are made in the linked project. When you are finished editing you can suspend the links.

You can link a single cell in Excel to multiple items in an AE project, as well as link a single worksheet to multiple AE projects. When you change a cell in a linked worksheet and that change updates the values of other cells, the corresponding values in AE change.

These changes will be made and saved even if the CostLink/AE project is not open. When the project is opened later you can choose whether or not to update the values.

This feature allows you to take advantage of model spreadsheets. In a model spreadsheet, you enter the overall size of a job, and then list some or all the folders and tasks that are needed in an estimate for that type of job. For the folders and tasks, enter formulas that calculate their quantities based on the overall size of the job.

In CostLink/AE, you create all the folders and drag in all the tasks for your estimate. However, instead of typing in the quantities for the folders and tasks, you can paste links from the corresponding values in Excel.

One-Time Set Up In Excel

Note that Linking to Excel is not available using Windows 7 or later. In order to link a CostLink/AE estimate to Excel, you need to add a COM Add-In to your Excel installation.

NOTE: COM stands for Component Object Model. Microsoft Excel's Help defines a COM Add-In as "a supplemental program that extends the capabilities of a Microsoft Office program by adding custom commands and specialized features." The particular COM Add-In that must be added was created by BSD to add a command to the Excel Edit menu (Copy As CostLink Source) that enables linking.

You will only need to add this once for each computer using the Excel linking feature. You need to do the following two tasks. Directions follow.

- Add the COM Add-Ins command to your Excel Tools menu so that you can install the COM Add-In
- Install the COM Add-In

Adding the COM Add-Ins Command To the Excel Tools menu

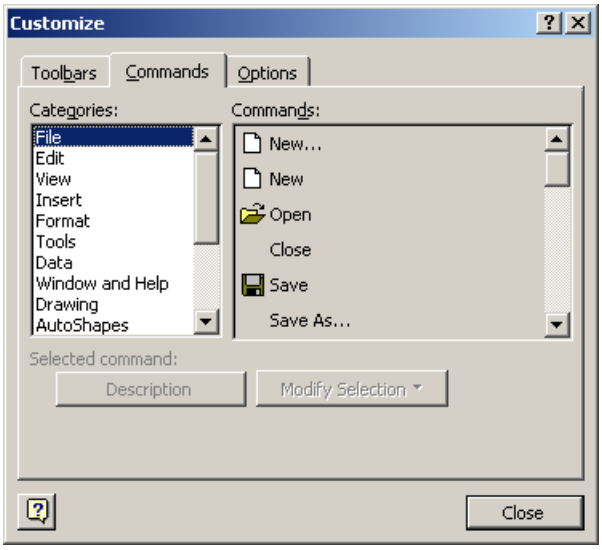
1. Open Excel 2000 (version 9.0) or higher.
2. Click on the Tools menu.
3. Show all the commands in the Tools menu by clicking the arrows at the bottom of the Tools menu .
4. If you see COM Add-Ins in the Tools menu, skip to *Installing the COM Add-In* in this chapter.

NOTE: The command will be listed as COM Add-Ins, not Add-Ins. In a standard installation of Excel, COM Add-Ins is not included on the Tools menu.

5. If you do not see COM Add-Ins in the Tools menu, click *Customize* in the Tools menu.

   The Customize dialog box opens to the Toolbars tab or to the last tab that was viewed in the Customize dialog box.
6. Click the Commands tab.

   The Commands tab opens.

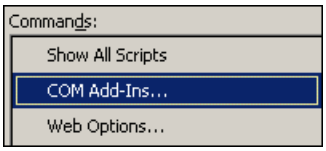


The Customize dialog box, Commands tab

7. In the Categories list, click Tools.

   The Commands list updates to show all the commands in the Tools category.

8. Scroll through the Commands list to find COM Add-Ins.



The COM Add-Ins command in the Commands list

NOTE: In the following steps, you will click and hold the left button on your mouse. Do not release it until the directions say 'release the mouse button.'

9. Click and hold on COM Add-Ins and drag it to the Tools menu. (Continue holding down the left mouse button.)

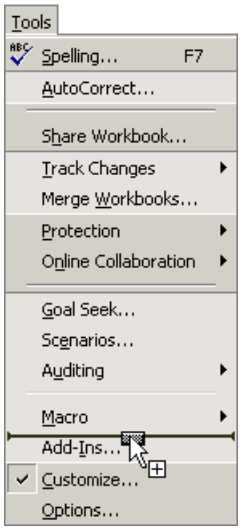
Your mouse pointer will look like this:

Mouse pointer when dragging a command to a menu or toolbar

10. As you hold the mouse button down over the Tools menu, the Tools menu will open.

11. Continue holding the mouse button down as you drag the command to where you would like it listed in the Tools menu.

    A black line will appear where the command will go. Continue dragging the mouse until the black line is located where you want the COM Add-Ins command. (You may want to put it near the bottom of the menu since you will probably only use it this one time.)



Tools menu showing black line where command will be listed once the mouse is released

12. Once the black line is located where you want COM Add-Ins listed, release the mouse button.

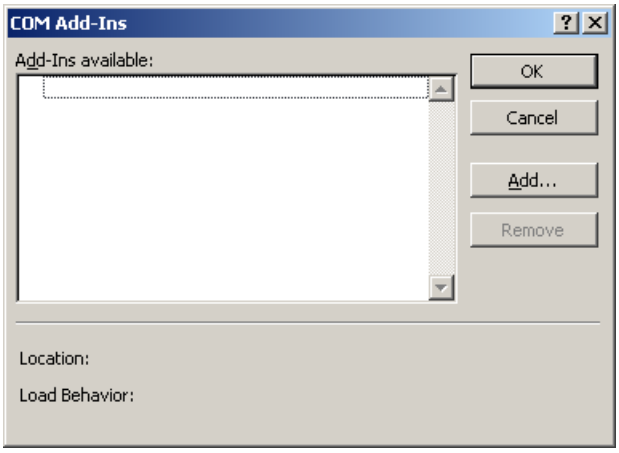
    COM Add-Ins is added to the Tools menu.

13. Close the Customize dialog box by clicking the Close button.

Installing the COM Add-In For Linking To Excel

1. In Excel, choose Tools > COM Add-Ins.

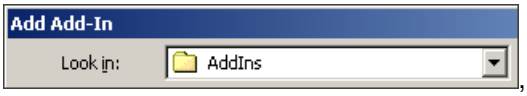
The COM Add-Ins dialog box opens.



The COM Add-Ins dialog box

2. Click the Add button.

   The Add Add-In dialog box opens.

3. Click the Look In: dropdown 

, and click on the drive that Windows is installed on. This is usually the C: drive.

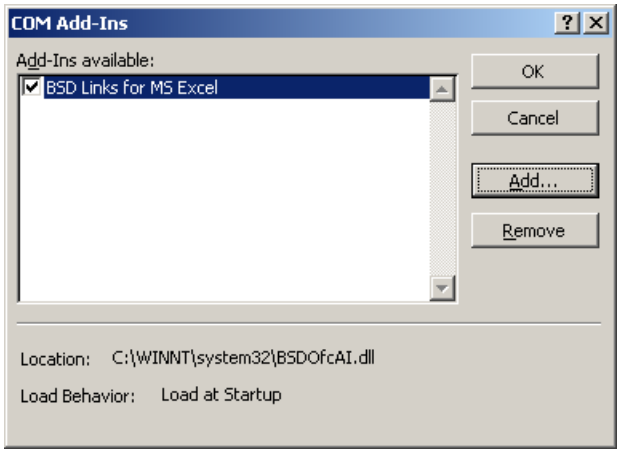
4. Double-click on the folders listed below for the version of Windows that you are running:

NOTE: If you do not know which version of Windows you are running, open Windows Explorer (you can do this either by holding down the Windows key on your keyboard ⊞ while you type the letter E, or by right-clicking on the Start menu and choosing any of the Explore options), and choose Help > About Windows.

   - for Windows Vista or XP, double-click on the `Windows` folder and then double-click on `System32`
   - for Windows 2000, double-click on the `WINNT` folder and then double-click on `System32`

5. Scroll to and double-click on the file `BSDOfcAI.dll`.

   The COM Add-Ins dialog box reopens and now lists BSD Links for MS Excel.



COM Add-Ins dialog box listing BSD Links for MS Excel

6. Click OK.

   Excel is now set up for linking.

About Parameter Workbooks in Excel

Parameter workbooks used in linking will usually have the following characteristics:

- No costs will be entered in the parameter workbook. The costs will come from the assemblies and line items in CostLink/AE. The sole purpose of the parameter workbook is to calculate the quantities of some or all of the items in the estimate based on the overall size of the job.
- The parameter workbook can span multiple worksheets and even multiple workbooks.
- If you rename the worksheets in your workbooks from Sheet1, Sheet2, etc. to something more descriptive, do not use any spaces, hyphens or underscores in the sheet names. CostLink/AE cannot link to a cell on a worksheet that has a space in its name.

NOTE: Do not rename a worksheet if links have already been copied from it.

- Parameter workbooks can be created by exporting a CostLink/AE report of the estimate to Excel format. This way you will get a list of all the folders and tasks in your project in Excel. You would then add information for the overall size of the job, and enter a formula for each task that will calculate its quantity based on the overall size of the job. (See Chapter 5 for information on exporting.)

About aecLinkMan

Each time you open CostLink/AE or an Excel workbook that is linked to a CostLink/AE estimate, a program called aecLinkMan launches in the background. While you are running CostLink/AE or an Excel workbook that is linked to a CostLink/AE estimate, you can press CTRL+ALT+Delete to open your Task Manager, and you will see aecLinkMan listed. This is the program that enables linking between CostLink/AE and Excel.

Since this program is running in the background, you do not need to have both AE and Excel running in order to edit a linked workbook or a linked estimate. If you edit a linked workbook, the next time you open the estimate that the workbook is linked to, aecLinkMan will prompt you that the workbook has been edited and ask if you want to update the links.

Excel Features Used in Linking

Linking automatically incorporates the following Excel features:

- Range names: In Excel you can name a cell or a group of cells (called a range), and then use the range name in formulas instead of remembering or looking up the cell reference (B2, D4, etc.).

- Range names cannot include spaces or punctuation, and they cannot begin with a number. Instead of spaces, you can use underbars (_). You can use a number anywhere within a range name except as the first character.

- When copying a cell to link to CostLink/AE, you will be required to enter a range name. When you paste the link into the estimate, CostLink/AE identifies the Excel cell by the name and location of the workbook, the name of the worksheet in the workbook, and the range name that you entered for the cell.

- Comments: Comments in Excel have some similarity to notes in CostLink/AE. Comments can be inserted into any cell by clicking on the cell and choosing Insert > Comment. Cells that contain comments are identified by a red triangle in the upper right corner of the cell.

Excel cell with a comment

Read the comment by holding your mouse over the cell. You can edit the comment by right-clicking on the cell and choosing Edit Comment from the context menu. Editing the comment includes resizing the comment so that you can read the entire comment, and also editing the text in the comment. You can remove the comment by right-clicking on the cell and choosing Delete Comment.

When you copy a cell to link to CostLink/AE, a comment is automatically inserted identifying that the cell is linked.

Directions for Linking to Excel

In general, the following steps are performed to link an Excel workbook to a CostLink/AE estimate:

1. Make sure the workbook is saved.
2. In Excel click on the cell that you want to link.
3. In Excel choose Edit > Copy as CostLink Source.

   The Enter Range Name dialog box will open.
4. Enter a name for the cell.

   The range name can be as descriptive as you like, but cannot have any spaces.
5. Click OK.
6. Switch to CostLink/AE using one of the following methods:
   - Windows Taskbar: Click the CostLink/AE button in the gray bar across the bottom of the screen that lists all the programs (tasks) that are currently running.
   - or Alt+Tab: On your keyboard, hold down the Alt key while you press and release the tab key. Continue pressing and releasing tab until the CostLink/AE icon is the selected program and then release the Alt key.
   - or click on the CostLink/AE window: Size your Excel and CostLink/AE windows so that you can see both, and use your mouse to click on the window you want.
7. In CostLink/AE, locate the folder or task that you want to link. Click on its parent in the tree panel so that the folder or task that you want to link is listed in the sheet panel.
8. Click in the quantity field for the folder or task in the sheet panel.
9. Choose LinkMan > Paste Link from Source.

   The quantity field displays the current value in Excel. If you update the Excel workbook, the quantity field will update to the new value.

Tips For Linking

When creating links from CostLink/AE, keep the following in mind:

- You must have opened CostLink/AE at one time on your computer before you can start linking to Excel. You do not need to keep CostLink/AE open while you are working on the spreadsheet, you just need to have opened it at some point.
- The Excel workbook needs to have a file name before you can link to it. To give it a file name, save the Excel workbook.
- Your links are saved in a database called aecLMDat.mdb. This file will probably be located in your C:\CostLink AE\System folder if you installed CostLink/AE in the default location.

  However, if you have installed BSD SpecLink+, BSD PerSpective, or BSD CostLink/CM, aecLMDat.mdb files are also located in the System folders of those programs, and your links may be stored in one of those aecLMDat.mdb files instead.

  Do not delete the aecLMDat.mdb file unless you want to delete all of your links.
- You can link one CostLink/AE estimate to cells on as many different worksheets in as many different workbooks as you need to.
- Do not use duplicate range names within the same worksheet in Excel.
- It is faster if Auto-Recalculate Markups is turned off in CostLink/AE while you are making and refreshing links. Toggle Auto-Recalculate Markups on and off by choosing it from the Tools menu. When it is on, the command has a checkmark next to it.

When editing an Excel workbook that is already linked, keep the following in mind:

- Once you have pasted links into CostLink/AE, do not change the sheet name in Excel.
- Excel workbooks that are linked to CostLink/AE projects are automatically saved as you edit them.

Commands For Linking

Linking in CostLink/AE is created, maintained, edited, and removed using the following commands in the LinkMan menu:

Paste Link from Source

After using the Copy as CostLink Source command in the Edit menu in Excel and giving the cell a Range Name, in the sheet panel of your estimate in CostLink/AE click in the quantity field of the folder or task that you want to link and choose this command. The following things will happen:

- The field will display the value of the cell in Excel.
- The background of the quantity field will turn gray indicating that it cannot be edited.
- A note will be added to the task or folder detailing which cell the quantity is linked to.
- A green Excel icon will appear in the upper right of the task icon to indicate that the task or folder is linked
- When the item form is opened for the linked task or folder, the *Use MS Excel Value times* option will be selected.

Delete Link from Source

If you no longer want a particular quantity linked, click on the folder or task in the sheet panel and choose this command. A message will open asking if you are sure you want to delete the link. If you do not want to delete the link, choose Cancel. Click OK to delete the link. Once you click on a different folder in the tree panel and back on the parent of the item you deleted the link to, the quantity field will be white in the background indicating that you can edit the quantity, and the note indicator and the Excel link indicator will be removed from the icon for the folder or task. The value that it was last linked to will still be in the Quantity field, but it will not update if the workbook is edited.

Refresh All Links From Sources

If you have chosen to Disable Updating from Sources, either by choosing the command from the LinkMan menu, or by choosing to not update links when you open an estimate that is linked to Excel, choose this command to refresh the links without turning the automatic updating back on.

Change Excel Links Source	This command applies to linking to Excel only. Use this command to link the project to a different Excel workbook. The best way to do this is to first create a copy of the workbook that the project is currently linked to. This way the information will be located in the same places in the new workbook. When you choose this command, a Select New Excel Links Source dialog box will open. Navigate to, click on, and open the workbook you want to link to. A message will open asking you to confirm that you actually want to change the links source. (You can click Cancel if you have changed your mind.) When you click OK, if you have the new Excel workbook open, it will automatically update the links and open a message to confirm that the links were updated. If you do not have the new Excel workbook open, a message will open stating that you need to open the Excel workbook in order to update the links. Once you open the new Excel workbook, the links will update if you have the automatic update turned on, or you can choose the Refresh All Links from Sources command to manually update the links.
Disable Updating from Sources	This command is a toggle. By default it is turned off - links will update automatically as the link sources are edited. When the command is selected, a checkmark appears next to it in the menu indicating that it is on - links will not update automatically as the link sources are edited. To turn it off again, choose the command again. You may choose to turn this command on while you are editing so that you do not have to wait for links to update.
Remove All Links from Sources	Use this command if you no longer want the estimate linked. If you choose this command, a message will open asking you to confirm that you want to remove the links. (You can choose Cancel if you have changed your mind.) When you click OK, the links will be removed and a message will open stating that the links have been removed. The quantity fields of the previously linked items will be white in the background indicating that you can edit the quantity, and the note indicators and the green Excel link indicators will be removed from the icons of the folders and/or tasks. The values that they were last linked to will still be in the Quantity fields, but they will not update if the link sources are edited.

Appendix A

Toolbar and Menu Reference

This chapter provides brief descriptions of each command on the BSD CostLink/AE toolbars and menus. Where appropriate, it provides references to other sections of the manual for more information.

- BSD CostLink/AE Toolbars
- Menus
- Context Menus

BSD CostLink/AE Toolbar

The toolbar is displayed at the top of the BSD CostLink/AE program window, just below the menu bar. You can turn the toolbar on and off using the Toolbars command on the View menu.

NOTE: You can change and arrange the buttons shown on the BSD CostLink/AE toolbar. See Chapter 6 for instructions.

Toolbar Buttons

Create a new project. Displays the New dialog box, which you use to select a template for CostLink/AE to use as the basis of the new project.

Open recently used projects dialog. Displays the Recently Used dialog box, which you can use to select from recently used projects. You can also click Browse to search for and open other projects that are not visible in the Recently Used dialog box.

Refer to Chapter 4 for information on opening projects.

Close. Closes the currently active project along with its resource windows.

Print selected report. Prints the report(s) as currently selected and formatted in the Reports dialog box.

Print selected report to preview window. Displays a preview of the reports as currently selected and formatted on the Reports dialog box.

Select and format reports. Displays the Reports dialog box for selecting and formatting reports.

Refer to Chapter 5 for information on Reports.

Find. Displays the Find In dialog box for finding information in the current project or resource window.

Recalculate the current project. Causes CostLink/AE to recalculate the estimate. (Not available when the current window is a resource window.)

Cut. Removes the currently highlighted folder or task (assembly or line item) and places it in the Windows Clipboard. Can also be used to remove currently highlighted text and place it in the Windows Clipboard. This is used in conjunction with Paste as a way to move assemblies or line items within your project.

> **NOTE:** If you want to permanently remove a folder, task, or text use *Delete selected item* . Only use *Cut* if you want to *Paste* the folder, task, or text in a different location.

Copy the selected item to the clipboard. Copies the currently highlighted task (or text) to the Windows Clipboard.

> **NOTE:** CostLink/AE permits you to Copy but not Cut in some cases. For example, you can Copy but not Cut tasks or folders from the Assemblies resource window.

Paste. Places the current contents of the Windows Clipboard (text or tasks) into the location of the cursor.

Delete selected item. Deletes the selected task or folder. CostLink/AE prompts you to confirm the deletion.

> **NOTE:** When you delete a folder with subordinate folders or tasks, CostLink/AE prompts you to specify whether to move the subordinate tasks to the Unassigned folder. This allows you to assign the tasks to another folder rather than deleting them.

Open the Summary Info dialog. Displays the Summary Info dialog box for the current project.

Refer to Chapter 4 for information on the Summary Info dialog box.

Open item form on the Tree panel. Opens an item form for the folder that is currently selected in the Tree panel.

Open item form on the Sheet panel. Opens an item form for the folder or task that is currently selected in the Sheet panel.

Open the Notes form. Opens a Notes and Pictures form for the currently selected folder or task.

Refer to Chapter 6 for information on adding notes and pictures.

Use single tab for tree. Displays all folders in the project or resource window on a single tab rather than one tab for each top-level folder.

Show folder tags. Shows the tags of each folder in the tree panel.

Caution: If you insert a new folder with Show Folder Tags turned on, and if you type the name in the Tree panel rather than the Folder Form, the first characters you enter (up to the first space character) become the Source Tag for the new folder. To avoid problems with this, either enter the Folder Tag first, enter a space as the first character when you insert the new folder, turn Show Folder Tags off, or enter the name in the Folder Form.

Show folder data in Tree. Shows summary costs and other information for each folder in the Tree Panel. (Not available when a resource window is the current window).

Expand Branch. Expands the display in the tree panel to show all items below the current folder.

Show all folders. Expands the Tree Panel to display all folders.

Open Assemblies resource window. Displays the Assemblies resource window for the current project.

Refer to Chapter 4 for information on the Assemblies resource window.

Open Unit Prices resource window. Displays the Unit Prices resource window for the current project.

Tile windows horizontally. Arranges all open windows horizontally.

Tile windows vertically. Arranges all open windows vertically.

Stack windows in cascade. Arranges all open windows one atop the other with their left and top portions visible.

Open Help to Contents. Displays the CostLink/AE Help contents tab.

Refer to Chapter 3 for information on BSD CostLink/AE Help.

Menus

BSD CostLink/AE provides commands on the following menus, located on the menu bar at the top of the main window:

Menu bar

File Menu

New Project	Creates a new project. Displays the New dialog box, which you use to select a template to use as the basis of the new project.
Open	Displays a flyout menu with options for opening projects and resource windows. You can select the Recently Used dialog box to choose from recently opened projects, or you can select one of the resource windows if a project is open.
Close	Closes the current project and its resource windows.
Summary Info	Displays the Summary Info dialog box, which you use to enter information relevant to the project as a whole. ***Refer to*** Chapter 4 for information on the Summary Info dialog box.
Reports Setup	Displays the Reports dialog box for selecting and formatting reports. ***Refer to*** Chapter 5 for information on reports.
Print Setup	Displays the Windows Printer Properties dialog box, which you can use to change your Windows printer settings.
Print Preview	Displays a preview of the printed reports as currently selected and formatted on the Reports dialog box.
Print	Prints the reports as currently selected and formatted on the Reports dialog box.
Copy	Use this command to copy a project. ***Refer to*** Chapter 6 for more information on copying projects.
Load from Compressed	Use to load projects that have been saved in compressed format. The Select Compressed File Path dialog box is displayed for you to select the compressed project. ***Refer to*** Chapter 6 for information on Load from Compressed and Save to Compressed.
Save to Compressed	Saves the current project in compressed format. The Select Compressed File Path dialog box is displayed for you to choose the name and location for the compressed project.
Compact Database	Use this command when BSD CostLink/AE has problems opening a project. This can occur if a project becomes very large or corrupted. Make sure the project is closed, then choose this option. BSD CostLink/AE displays a dialog box for you to select the project to be repaired and compacted. ***Refer to*** Chapter 6 for information on compacting databases.

Permissions	Opens the permissions dialog box for inputting the access key and accessing system settings. (Available only when no projects are open.) ***Refer to*** the Installation document available on the Install BSD Products screen of the most recent BSD SoftLink CD for more information on Permissions.
Recently Opened Databases	This list shows the four most recently opened projects. Click on any project to open it.
Exit	Closes all open projects and resource windows and exits CostLink/AE.

Edit Menu

Cut	Removes the currently highlighted folder or task (assembly or line item) and places it on the Windows Clipboard. Can also be used to remove highlighted text and place it on the Windows Clipboard. This is used in conjunction with Paste as a way to move assemblies or line items within your project.

> **NOTE:** If you want to permanently remove a folder, task, or text use *Delete.* Only use *Cut* if you want to *Paste* the folder, task, or text in a different location. ***Refer to*** Chapter 6 for more information on Cut, Copy, and Paste.

Copy	Copies the currently highlighted folder, task, or text to the Windows Clipboard.

> **NOTE:** CostLink/AE permits you to Copy but not Cut in some cases. For example, you can Copy but not Cut tasks or folders in the Assemblies resource window.

Paste	Places the current contents of the Windows Clipboard into the location of the cursor.
Delete	Deletes the selected task or folder. BSD CostLink/AE prompts you to confirm the deletion. (Available in project windows only.)

> **NOTE:** When you delete a folder with subordinate folders or tasks, CostLink/AE prompts you to specify whether to move the subordinate tasks to the Unassigned folder. This allows you to assign the tasks to another folder rather than deleting them.

Find	Displays the Find in dialog box for finding information in the current project or resource window. ***Refer to*** Chapter 6 for information on using Find.
Select All Tasks	Selects all of the tasks currently listed in the sheet panel. You can use this command when you want to delete or copy all tasks beneath a certain folder.

View Menu

with Horizontal Panels	Displays the data in the current Window with a tree panel on top and sheet panel on the bottom. This is the default arrangement.
with Vertical Panels	Displays the data in the current Window with a tree panel on the left and sheet panel on the right.
Tree Items Form	Opens the item form for the current folder in the tree panel.
Sheet Items Form	Opens the item form for the current folder, assembly, or line item in the sheet panel.
Notes Window	Opens the Notes form for the current folder, assembly, or line item for adding notes or pictures. ***See*** Chapter 6 for information on adding notes and pictures.
Tree Panel	Turns on and off the display of the sheet panel in the current window, making the Tree Panel the only panel visible. Click Tree Panel again to make the sheet panel visible again.
Sheet Panel	Turns on and off the display of the tree panel in the current window, making the Sheet Panel the only panel visible. Click Sheet Panel again to make the tree panel visible again.
Toolbars	Displays a flyout menu for you to turn on or off the display of the different toolbars or to customize the toolbars.
Status Bar	Turns on and off the display of the status bar at the bottom of the BSD CostLink/AE main window.

Tree Menu

Up One Level	Highlights the folder above the currently-selected folder in the Tree Panel.
Down One Level	If not already showing, displays the next lowest level of the folder hierarchy in the tree panel and highlights the first folder below the current folder.

Go to Folder	Displays a flyout menu for you to choose different folders to select in the tree panel. Choices are: the first and last folders, and the next and previous folders relative to the currently selected one.
Use Single Tab	Displays all folders in the project on a single tab rather than one tab for each top-level folder. (Not available when a resource window is the active window.)
Show Hierarchy	Displays a flyout menu for you to choose different levels of the folder hierarchy to display: 1, 2, 3, or 4 levels.
Expand Branch	Expands the display in the tree panel to show all folders below the current folder.
Expand All	Expands the display in the tree panel to show all folders.
Show Folder Tags	Shows the tags of each folder in the tree panel. **Caution**: If you insert a new folder with Show Folder Tags turned on, and if you type the name in the Tree panel rather than the Folder Form, then the first characters you enter (up to the first space character) become the Source Tag for the new folder. To avoid any problems with this, either enter the Folder Tag first, enter a space as the first character when you insert the new folder, turn Show Folder Tags off, or enter the name in the Folder Form.
Show Data in Tree	Show summary costs and other information with each folder in the tree panel. (Not available when a resource window is the current window).

Insert Menu

NOTE: This menu is used to add new folders and line items to your project. It will not be available when a resource window is the active window. The new folders and line items will be empty. To enter names, descriptions, and other information, highlight the new item with the right mouse button, and choose Edit Folder or Edit Item.

Folder	Adds a new folder at the same level and before the folder currently selected in the tree panel.

NOTE: To insert a folder at Level 1 (the top level folders in your project) your project folders must be displaying on a single tab. The *Use single tab* button will appear pushed in ( ) if you are in single tab mode. Then select the top folder (it says your project name) and choose Insert > Child Folder.

Child Folder	Adds a new folder at the level below the currently selected folder in the tree panel, and after any existing subfolders.
Task	Adds a new line item to the folder currently selected in the tree panel.

LinkMan Menu

> **NOTE:** Options on the LinkMan menu are only available when a project is the current window.

Paste Link from Source	Pastes a link from a copied value in Excel to the quantity of the currently-selected folder, or task (assembly or line item). ***Refer to*** Chapter 7 for more information on linking.

> **NOTE:** You must have Excel 2000 (version 9.0) or higher to create links between CostLink/AE and Excel.

Delete Link from Source	Removes the link between either a parent folder or a value in Excel, and the quantity of the currently selected folder or task.
Refresh All Links From Sources	Updates the quantities of all linked folders and tasks.
Change Excel Links Source	Opens a dialog box for selecting a different Excel workbook as the source for linked quantities in the project.
Disable Updating from Sources	This command is a toggle for disabling and enabling automatic updating of linked quantities. Editing a linked project will be faster with automatic updating disabled.
Remove All Links from Sources	Removes all links in the current project, so that if the link source is edited, the quantities in the project do not change.

Tools Menu

Recalculate All	Causes BSD CostLink/AE to recalculate the current project. (Not available when a resource window is the current window.)
Auto-Recalculate Markups	When checked, this option causes BSD CostLink/AE to recalculate the Markups in the project automatically as you make changes. You are able to see the changes in the Tree Data immediately. Editing a project will be faster with this option turned off. Click the option to turn it on and off.

Prompt Before Completing Drag	When checked, this option causes BSD CostLink/AE to issue a prompt requiring you to confirm all drag and drop operations. Click the option to turn it on and off.
Delete Empty Folders	Deletes all empty folders in the project. BSD CostLink/AE prompts you to confirm the operation. (Not available when a resource window is the current window.)

> **NOTE:** Empty folders at Level 1 are not deleted. If you want to delete an empty folder at the top level, select it in the tree panel and choose Edit > Delete.

Change RS Means Database	Select this option in order to copy costs from a different RS Means database. For example, if you created the project in 2005, then you are copying costs from the 2006 RS Means database. Select this command to be able to copy costs from the most current RS Means database in to the current estimate. ***Refer to*** Chapter 6 for more information on using different RS Means databases.
Update RS Means Database	After you use "Change RS Means Database," choose this command to reprice all items copied from the original RS Means database to the corresponding costs in the newly selected RS Means database.
Customize Tools Menu	Displays the Customize Tools Menu dialog box, which allows you to launch other applications (like the Windows calculator) from your Tools menu. ***Refer to*** Chapter 6 for instructions on customizing the Tools menu.

Window Menu

Arrange Icons	Arranges the icons of all windows you have minimized at the bottom of the CostLink/AE main window.
Tile Horizontally	Arranges all open windows horizontally. (Minimized windows will not be tiled.)
Tile Vertically	Arranges all open windows vertically. (Minimized windows will not be tiled.)
Cascade Windows	Arranges all open windows one atop the other with their left and top portions visible. (Minimized windows will not be cascaded.)
New Window	Opens a new window containing the same data and view as the currently selected window. Use this command to open two windows of your project to copy or move folders and tasks within the project.

Open Windows list	The list shows all CostLink/AE windows currently open. Click on a window to make it the current window. If not currently visible, the window will also become visible.

Refer to Chapter 3 for information on controlling the display.

Help Menu

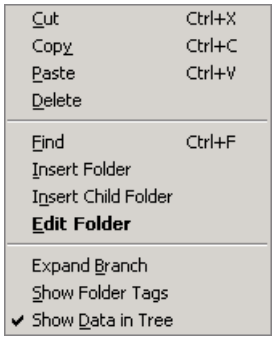
Contents	Displays the Help Contents tab. The Contents tab is similar to the table of contents in a book. Each book icon represents a subheading in the Help file. Each page icon represents a topic.
Index	Displays the Help Index tab. The Index tab is used to search Help by keywords for each topic.
Search	The Search tab is used to conduct a full-text search of all Help topics. Use the Search tab if you cannot find the Help you need using the Contents or Index tabs..
About BSD CostLink/AE	Displays information on the BSD CostLink/AE version, along with diagnostic information on your computer.

Context Menus

Context menus are a quick way to access key BSD CostLink/AE functions. You display context menus by positioning the cursor in a particular location and clicking the right mouse button. Which options are displayed depend on your location (the context).

The commands available on the context menus are equivalent to commands on the Toolbars and Pulldown menus.

The following is an example of a context menu.



Example of a context menu

Appendix B

R.S. Means Abbreviations

This chapter provides a list of the abbreviations used in the R.S. Means databases viewed in the Assemblies and Unit Prices resource windows.

Abbreviations

A	Area Square Feet; Ampere
AAFES	Army and Air Force Exchange Service
ABS	Acrylonitrile Butadiene Stryrene; Asbestos Bonded Steel
A.C., AC	Alternating Current; Air-Conditioning; Asbestos Cement; Plywood Grade A & C
ACI	American Concrete Institute
ACR	Air Conditioning Refrigeration
ADA	Americans with Disabilities Act
AD	Plywood, Grade A & D
Addit.	Additional
Adj.	Adjustable
af	Audio-frequency
AFUE	Annual Fuel Utilization Efficiency
AGA	American Gas Association
Agg.	Aggregate
A.H., Ah	Ampere Hours
A hr.	Ampere-hour
A.H.U., AHU	Air Handling Unit
A.I.A.	American Institute of Architects
AIC	Ampere Interrupting Capacity
Allow.	Allowance
alt., alt	Alternate
Alum.	Aluminum
a.m.	Ante Meridiem
Amp.	Ampere
Anod.	Anodized
ANSI	American National Standards Institute
APA	American Plywood Association
Approx.	Approximate
Apt.	Apartment
Asb.	Asbestos
A.S.B.C.	American Standard Building Code
Asbe.	Asbestos Worker
ASCE.	American Society of Civil Engineers
A.S.H.R.A.E.	American Society of Heating, Refrig. & AC Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
Attchmt.	Attachment
Avg., Ave.	Average
AWG	American Wire Gauge
AWWA	American Water Works Assoc.
Bbl.	Barrel
B&B, BB	Grade B and Better; Balled & Burlapped
B&S	Bell and Spigot
B.&W.	Black and White
b.c.c.	Body-centered Cubic
B.C.Y.	Bank Cubic Yards
BE	Bevel End
B.F.	Board Feet
Bg. cem.	Bag of Cement
BHP	Boiler Horsepower; Brake Horsepower
B.I.	Black Iron
bidir.	bidirectional
Bit., Bitum.	Bituminous
Bit., Conc.	Bituminous Concrete
Bk.	Backed
Bkrs.	Breakers
Bldg., bldg	Building
Blk.	Block
Bm.	Beam
Boil.	Boilermaker
bpm	Blows per Minute
BR	Bedroom
Brg.	Bearing
Brhe.	Bricklayer Helper
Bric.	Bricklayer
Brk., brk	Brick
brkt	Bracket
Brng.	Bearing
Brs.	Brass
Brz.	Bronze
Bsn.	Basin
Btr.	Better
Btu	British Thermal Unit
BTUH	BTU per Hour
Bu.	bushels
BUR	Built-up Roofing
BX	Interlocked Armored Cable
°C	degree centegrade
c	Conductivity, Copper Sweat
C	Hundred; Centigrade
C/C	Center to Center, Cedar on Cedar
C-C	Center to Center
Cab	Cabinet
Cair.	Air Tool Laborer
Cal.	caliper
Calc	Calculated
Cap.	Capacity
Carp.	Carpenter
C.B.	Circuit Breaker
C.C.A.	Chromate Copper Arsenate
C.C.F.	Hundred Cubic Feet
cd	Candela
cd/sf	Candela per Square Foot
CD	Grade of Plywood Face & Back
CDX	Plywood, Grade C & D, exterior glue
Cefi.	Cement Finisher
Cem.	Cement
CF	Hundred Feet
C.F.	Cubic Feet
CFM	Cubic Feet per Minute
CFRP	Carbon Fiber Reinforced Plastic
c.g.	Center of Gravity
CHW	Chilled Water; Commercial Hot Water
C.I., CI	Cast Iron
C.I.P., CIP	Cast in Place
Circ.	Circuit
C.L.	Carload Lot
CL	Chain Link
Clab.	Common Laborer
Clam	Common maintenance laborer
C.L.F.	Hundred Linear Feet
CLF	Current Limiting Fuse
CLP	Cross Linked Polyethylene
cm	Centimeter
CMP	Corr. Metal Pipe
CMU	Concrete Masonry Unit
CN	Change Notice
Col.	Column
CO_2	Carbon Dioxide
Comb.	Combination
comm.	Commercial, Communication
Compr.	Compressor
Conc.	Concrete
Cont., cont	Continuous; Continued, Container
Corr.	Corrugated
Cos	Cosine
Cot	Cotangent
Cov.	Cover
C/P	Cedar on Paneling
CPA	Control Point Adjustment
Cplg.	Coupling
CPM	Critical Path Method
CPVC	Chlorinated Polyvinyl Chloride
C.Pr.	Hundred Pair
CRC	Cold Rolled Channel
Creos.	Creosote
Crpt.	Carpet & Linoleum Layer
CRT	Cathode-ray Tube
CS	Carbon Steel, Constant Shear Bar Joist
Csc	Cosecant
C.S.F.	Hundred Square Feet
CSI	Construction Specifications Institute
CT	Current Transformer
CTS	Copper Tube Size
Cu	Copper, Cubic
Cu. Ft.	Cubic Foot
cw	Continuous Wave
C.W.	Cool White; Cold Water
Cwt.	100 Pounds
C.W.X.	Cool White Deluxe
C.Y.	Cubic Yard (27 cubic feet)
C.Y./Hr.	Cubic Yard per Hour
Cyl.	Cylinder
d	Penny (nail size)
D	Deep; Depth; Discharge
Dis., Disch.	Discharge
Db	Decibel
Dbl.	Double
DC	Direct Current
DDC	Direct Digital Control
Demob.	Demobilization
d.f.t.	Dry Film Thickness
d.f.u.	Drainage Fixture Units
D.H.	Double Hung
DHW	Domestic Hot Water
DI	Ductile Iron
Diag.	Diagonal
Diam., Dia	Diameter
Distrib.	Distribution
Div.	Division
Dk.	Deck
D.L.	Dead Load; Diesel
DLH	Deep Long Span Bar Joist
dlx	Deluxe
Do.	Ditto
DOP	Dioctyl Phthalate Penetration Test (Air Filters)
Dp., dp	Depth
D.P.S.T.	Double Pole, Single Throw
Dr.	Drive
DR	Dimension Ratio
Drink.	Drinking
D.S.	Double Strength
D.S.A.	Double Strength A Grade
D.S.B.	Double Strength B Grade
Dty.	Duty
DWV	Drain Waste Vent
DX	Deluxe White, Direct Expansion
dyn	Dyne
e	Eccentricity
E	Equipment Only; East; emissivity
Ea.	Each
EB	Encased Burial
Econ.	Economy
E.C.Y	Embankment Cubic Yards
EDP	Electronic Data Processing
EIFS	Exterior Insulation Finish System
E.D.R.	Equiv. Direct Radiation
Eq.	Equation
EL	elevation
Elec.	Electrician; Electrical
Elev.	Elevator; Elevating
EMT	Electrical Metallic Conduit; Thin Wall Conduit
Eng.	Engine, Engineered
EPDM	Ethylene Propylene Diene Monomer
EPS	Expanded Polystyrene
Eqhv.	Equip. Oper., Heavy
Eqlt.	Equip. Oper., Light
Eqmd.	Equip. Oper., Medium
Eqmm.	Equip. Oper., Master Mechanic
Eqol.	Equip. Oper., Oilers
Equip.	Equipment
ERW	Electric Resistance Welded

Abbreviations

E.S.	Energy Saver
Est.	Estimated
esu	Electrostatic Units
E.W.	Each Way
EWT	Entering Water Temperature
Excav.	Excavation
excl	Excluding
Exp., exp	Expansion, Exposure
Ext., ext	Exterior; Extension
Extru.	Extrusion
f.	Fiber stress
F	Fahrenheit; Female; Fill
Fab., fab	Fabricated; fabric
FBGS	Fiberglass
F.C.	Footcandles
f.c.c.	Face-centered Cubic
f'c.	Compressive Stress in Concrete; Extreme Compressive Stress
F.E.	Front End
FEP	Fluorinated Ethylene Propylene (Teflon)
F.G.	Flat Grain
F.H.A.	Federal Housing Administration
Fig.	Figure
Fin.	Finished
FIPS	Female Iron Pipe Size
Fixt.	Fixture
FJP	Finger jointed and primed
Fl. Oz.	Fluid Ounces
Flr.	Floor
FM	Frequency Modulation; Factory Mutual
Fmg.	Framing
FM/UL	Factory Mutual/Underwriters Labs
Fdn.	Foundation
FNPT	Female National Pipe Thread
Fori.	Foreman, Inside
Foro.	Foreman, Outside
Fount.	Fountain
fpm	Feet per Minute
FPT	Female Pipe Thread
Fr	Frame
F.R.	Fire Rating
FRK	Foil Reinforced Kraft
FSK	Foil/scrim/kraft
FRP	Fiberglass Reinforced Plastic
FS	Forged Steel
FSC	Cast Body; Cast Switch Box
Ft., ft	Foot; Feet
Ftng.	Fitting
Ftg.	Footing
Ft lb.	Foot Pound
Furn.	Furniture
FVNR	Full Voltage Non-Reversing
FVR	Full Voltage Reversing
FXM	Female by Male
Fy.	Minimum Yield Stress of Steel
g	Gram
G	Gauss
Ga.	Gauge
Gal., gal.	Gallon
gpm, GPM	Gallon per Minute
Galv., galv	Galvanized
GC/MS	Gas Chromatograph/Mass Spectrometer
Gen.	General
GFI	Ground Fault Interrupter
GFRC	Glass Fiber Reinforced Concrete
Glaz.	Glazier
GPD	Gallons per Day
gpf	Gallon per flush
GPH	Gallons per Hour
GPM	Gallons per Minute
GR	Grade
Gran.	Granular
Grnd.	Ground
GVW	Gross Vehicle Weight
GWB	Gypsum wall board
H	High Henry
HC	High Capacity
H.D., HD	Heavy Duty; High Density
H.D.O.	High Density Overlaid
HDPE	High density polyethelene plastic
Hdr.	Header
Hdwe.	Hardware
H.I.D., HID	High Intensity Discharge
Help.	Helper Average
HEPA	High Efficiency Particulate Air Filter
Hg	Mercury
HIC	High Interrupting Capacity
HM	Hollow Metal
HMWPE	high molecular weight polyethylene
HO	High Output
Horiz.	Horizontal
H.P., HP	Horsepower; High Pressure
H.P.F.	High Power Factor
Hr.	Hour
Hrs./Day	Hours per Day
HSC	High Short Circuit
Ht.	Height
Htg.	Heating
Htrs.	Heaters
HVAC	Heating, Ventilation & Air-Conditioning
Hvy.	Heavy
HW	Hot Water
Hyd.; Hydr.	Hydraulic
Hz	Hertz (cycles)
I.	Moment of Inertia
IBC	International Building Code
I.C.	Interrupting Capacity
ID	Inside Diameter
I.D.	Inside Dimension; Identification
I.F.	Inside Frosted
I.M.C.	Intermediate Metal Conduit
In.	Inch
Incan.	Incandescent
Incl.	Included; Including
Int.	Interior
Inst.	Installation
Insul., insul	Insulation/Insulated
I.P.	Iron Pipe
I.P.S., IPS	Iron Pipe Size
IPT	Iron Pipe Threaded
I.W.	Indirect Waste
J	Joule
J.I.C.	Joint Industrial Council
K	Thousand; Thousand Pounds; Heavy Wall Copper Tubing, Kelvin
K.A.H.	Thousand Amp. Hours
kcmil	Thousand Circular Mils
KD	Knock Down
K.D.A.T.	Kiln Dried After Treatment
kg	Kilogram
kG	Kilogauss
kgf	Kilogram Force
kHz	Kilohertz
Kip	1000 Pounds
KJ	Kiljoule
K.L.	Effective Length Factor
K.L.F.	Kips per Linear Foot
Km	Kilometer
KO	Knock Out
K.S.F.	Kips per Square Foot
K.S.I.	Kips per Square Inch
kV	Kilovolt
kVA	Kilovolt Ampere
kVAR	Kilovar (Reactance)
KW	Kilowatt
KWh	Kilowatt-hour
L	Labor Only; Length; Long; Medium Wall Copper Tubing
Lab.	Labor
lat	Latitude
Lath.	Lather
Lav.	Lavatory
lb.; #	Pound
L.B., LB	Load Bearing; L Conduit Body
L. & E.	Labor & Equipment
lb./hr.	Pounds per Hour
lb./L.F.	Pounds per Linear Foot
lbf/sq.in.	Pound-force per Square Inch
L.C.L.	Less than Carload Lot
L.C.Y.	Loose Cubic Yard
Ld.	Load
LE	Lead Equivalent
LED	Light Emitting Diode
L.F.	Linear Foot
L.F. Nose	Linear Foot of Stair Nosing
L.F. Rsr	Linear Foot of Stair Riser
Lg.	Long; Length; Large
L & H	Light and Heat
LH	Long Span Bar Joist
L.H.	Labor Hours
L.L., LL	Live Load
L.L.D.	Lamp Lumen Depreciation
lm	Lumen
lm/sf	Lumen per Square Foot
lm/W	Lumen per Watt
LOA	Length Over All
log	Logarithm
L-O-L	Lateralolet
long.	longitude
L.P., LP	Liquefied Petroleum; Low Pressure
L.P.F.	Low Power Factor
LR	Long Radius
L.S.	Lump Sum
Lt.	Light
Lt. Ga.	Light Gauge
L.T.L.	Less than Truckload Lot
Lt. Wt.	Lightweight
L.V.	Low Voltage
M	Thousand; Material; Male; Light Wall Copper Tubing
M^2CA	Meters Squared Contact Area
m/hr.; M.H.	Man-hour
mA	Milliampere
Mach.	Machine
Mag. Str.	Magnetic Starter
Maint.	Maintenance
Marb.	Marble Setter
Mat; Mat'l.	Material
Max.	Maximum
MBF	Thousand Board Feet
MBH	Thousand BTU's per hr.
MC	Metal Clad Cable
MCC	Motor Control Center
M.C.F.	Thousand Cubic Feet
MCFM	Thousand Cubic Feet per Minute
M.C.M.	Thousand Circular Mils
MCP	Motor Circuit Protector
MD	Medium Duty
MDF	Medium-density fibreboard
M.D.O.	Medium Density Overlaid
Med.	Medium
MF	Thousand Feet
M.F.B.M.	Thousand Feet Board Measure
Mfg.	Manufacturing
Mfrs.	Manufacturers
mg	Milligram
MGD	Million Gallons per Day
MGPH	Thousand Gallons per Hour
MH, M.H.	Manhole; Metal Halide; Man-Hour
MHz	Megahertz
Mi.	Mile
MI	Malleable Iron; Mineral Insulated
MIPS	Male Iron Pipe Size
mj	Mechanical Joint
m	Meter
mm	Millimeter
Mill.	Millwright
Min., min.	Minimum, minute

Abbreviations

Misc.	Miscellaneous
ml	Milliliter, Mainline
M.L.F.	Thousand Linear Feet
Mo.	Month
Mobil.	Mobilization
Mog.	Mogul Base
MPH	Miles per Hour
MPT	Male Pipe Thread
MRGWB	Moisture Resistant Gypsum Wallboard
MRT	Mile Round Trip
ms	Millisecond
M.S.F.	Thousand Square Feet
Mstz.	Mosaic & Terrazzo Worker
M.S.Y.	Thousand Square Yards
Mtd., mtd., mtd	Mounted
Mthe.	Mosaic & Terrazzo Helper
Mtng.	Mounting
Mult.	Multi; Multiply
M.V.A.	Million Volt Amperes
M.V.A.R.	Million Volt Amperes Reactance
MV	Megavolt
MW	Megawatt
MXM	Male by Male
MYD	Thousand Yards
N	Natural; North
nA	Nanoampere
NA	Not Available; Not Applicable
N.B.C.	National Building Code
NC	Normally Closed
NEMA	National Electrical Manufacturers Assoc.
NEHB	Bolted Circuit Breaker to 600V.
NFPA	National Fire Protection Association
NLB	Non-Load-Bearing
NM	Non-Metallic Cable
nm	Nanometer
No.	Number
NO	Normally Open
N.O.C.	Not Otherwise Classified
Nose.	Nosing
NPT	National Pipe Thread
NQOD	Combination Plug-on/Bolt on Circuit Breaker to 240V.
N.R.C., NRC	Noise Reduction Coefficient/ Nuclear Regulator Commission
N.R.S.	Non Rising Stem
ns	Nanosecond
nW	Nanowatt
OB	Opposing Blade
OC	On Center
OD	Outside Diameter
O.D.	Outside Dimension
ODS	Overhead Distribution System
O.G.	Ogee
O.H.	Overhead
O&P	Overhead and Profit
Oper.	Operator
Opng.	Opening
Orna.	Ornamental
OSB	Oriented Strand Board
OS&Y	Outside Screw and Yoke
OSHA	Occupational Safety and Health Act
Ovhd.	Overhead
OWG	Oil, Water or Gas
Oz.	Ounce
P.	Pole; Applied Load; Projection
p.	Page
Pape.	Paperhanger
P.A.P.R.	Powered Air Purifying Respirator
PAR	Parabolic Reflector
PB., PB	Push Button
Pc., Pcs.	Piece, Pieces
P.C.	Portland Cement; Power Connector
P.C.F.	Pounds per Cubic Foot
PCM	Phase Contrast Microscopy
PDCA	Painting and Decorating Contractors of America
P.E., PE	Professional Engineer; Porcelain Enamel; Polyethylene; Plain End
P.E.C.I.	Porcelain Enamel on Cast Iron
Perf.	Perforated
PEX	Cross linked polyethylene
Ph.	Phase
P.I.	Pressure Injected
Pile.	Pile Driver
Pkg.	Package
Pl.	Plate
Plah.	Plasterer Helper
Plas.	Plasterer
plf	Pounds Per Linear Foot
Pluh.	Plumbers Helper
Plum.	Plumber
Ply.	Plywood
p.m.	Post Meridiem
Pntd.	Painted
Pord.	Painter, Ordinary
pp	Pages
PP, PPL	Polypropylene
P.P.M.	Parts per Million
Pr.	Pair
P.E.S.B.	Pre-engineered Steel Building
Prefab.	Prefabricated
Prefin.	Prefinished
Prop.	Propelled
PSF, psf	Pounds per Square Foot
PSI, psi	Pounds per Square Inch
PSIG	Pounds per Square Inch Gauge
PSP	Plastic Sewer Pipe
Pspr.	Painter, Spray
Psst.	Painter, Structural Steel
P.T.	Potential Transformer
P. & T.	Pressure & Temperature
Ptd.	Painted
Ptns.	Partitions
Pu	Ultimate Load
PVC	Polyvinyl Chloride
Pvmt.	Pavement
PRV	Pressure Relief Valve
Pwr.	Power
Q	Quantity Heat Flow
Qt.	Quart
Quan., Qty.	Quantity
Q.C.	Quick Coupling
r	Radius of Gyration
R	Resistance
R.C.P.	Reinforced Concrete Pipe
Rect.	Rectangle
recpt.	receptacle
Reg.	Regular
Reinf.	Reinforced
Req'd.	Required
Res.	Resistant
Resi.	Residential
RF	Radio Frequency
RFID	Radio-frequency identification
Rgh.	Rough
RGS	Rigid Galvanized Steel
RHW	Rubber, Heat & Water Resistant; Residential Hot Water
rms	Root Mean Square
Rnd.	Round
Rodm.	Rodman
Rofc.	Roofer, Composition
Rofp.	Roofer, Precast
Rohe.	Roofer Helpers (Composition)
Rots.	Roofer, Tile & Slate
R.O.W.	Right of Way
RPM	Revolutions per Minute
R.S.	Rapid Start
Rsr	Riser
RT	Round Trip
S.	Suction; Single Entrance; South
SBS	Styrene Butadiere Styrene
SC	Screw Cover
SCFM	Standard Cubic Feet per Minute
Scaf.	Scaffold
Sch., Sched.	Schedule
S.C.R.	Modular Brick
S.D.	Sound Deadening
SDR	Standard Dimension Ratio
S.E.	Surfaced Edge
Sel.	Select
SER, SEU	Service Entrance Cable
S.F.	Square Foot
S.F.C.A.	Square Foot Contact Area
S.F. Flr.	Square Foot of Floor
S.F.G.	Square Foot of Ground
S.F. Hor.	Square Foot Horizontal
SFR	Square Feet of Radiation
S.F. Shlf.	Square Foot of Shelf
S4S	Surface 4 Sides
Shee.	Sheet Metal Worker
Sin.	Sine
Skwk.	Skilled Worker
SL	Saran Lined
S.L.	Slimline
Sldr.	Solder
SLH	Super Long Span Bar Joist
S.N.	Solid Neutral
SO	Stranded with oil resistant inside insulation
S-O-L	Socketolet
sp	Standpipe
S.P.	Static Pressure; Single Pole; Self-Propelled
Spri.	Sprinkler Installer
spwg	Static Pressure Water Gauge
S.P.D.T.	Single Pole, Double Throw
SPF	Spruce Pine Fir; Sprayed Polyurethane Foam
S.P.S.T.	Single Pole, Single Throw
SPT	Standard Pipe Thread
Sq.	Square; 100 Square Feet
Sq. Hd.	Square Head
Sq. In.	Square Inch
S.S.	Single Strength; Stainless Steel
S.S.B.	Single Strength B Grade
sst, ss	Stainless Steel
Sswk.	Structural Steel Worker
Sswl.	Structural Steel Welder
St.; Stl.	Steel
STC	Sound Transmission Coefficient
Std.	Standard
Stg.	Staging
STK	Select Tight Knot
STP	Standard Temperature & Pressure
Stpi.	Steamfitter, Pipefitter
Str.	Strength; Starter; Straight
Strd.	Stranded
Struct.	Structural
Sty.	Story
Subj.	Subject
Subs.	Subcontractors
Surf.	Surface
Sw.	Switch
Swbd.	Switchboard
S.Y.	Square Yard
Syn.	Synthetic
S.Y.P.	Southern Yellow Pine
Sys.	System
t.	Thickness
T	Temperature; Ton
Tan	Tangent
T.C.	Terra Cotta
T & C	Threaded and Coupled
T.D.	Temperature Difference
Tdd	Telecommunications Device for the Deaf
T.E.M.	Transmission Electron Microscopy
temp	Temperature, Tempered, Temporary
TFFN	Nylon Jacketed Wire

Abbreviations

TFE	Tetrafluoroethylene (Teflon)
T. & G.	Tongue & Groove; Tar & Gravel
Th., Thk.	Thick
Thn.	Thin
Thrded	Threaded
Tilf.	Tile Layer, Floor
Tilh.	Tile Layer, Helper
THHN	Nylon Jacketed Wire
THW.	Insulated Strand Wire
THWN	Nylon Jacketed Wire
T.L., TL	Truckload
T.M.	Track Mounted
Tot.	Total
T-O-L	Threadolet
tmpd	Tempered
TPO	Thermoplastic Polyolefin
T.S.	Trigger Start
Tr.	Trade
Transf.	Transformer
Trhv.	Truck Driver, Heavy
Trlr	Trailer
Trlt.	Truck Driver, Light
TTY	Teletypewriter
TV	Television
T.W.	Thermoplastic Water Resistant Wire
UCI	Uniform Construction Index
UF	Underground Feeder
UGND	Underground Feeder
UHF	Ultra High Frequency
U.I.	United Inch
U.L., UL	Underwriters Laboratory
Uld.	unloading
Unfin.	Unfinished
UPS	Uninterruptible Power Supply
URD	Underground Residential Distribution
US	United States
USGBC	U.S. Green Building Council
USP	United States Primed
UTMCD	Uniform Traffic Manual For Control Devices
UTP	Unshielded Twisted Pair
V	Volt
VA	Volt Amperes
V.C.T.	Vinyl Composition Tile
VAV	Variable Air Volume
VC	Veneer Core
VDC	Volts Direct Current
Vent.	Ventilation
Vert.	Vertical
V.F.	Vinyl Faced
V.G.	Vertical Grain
VHF	Very High Frequency
VHO	Very High Output
Vib.	Vibrating
VLF	Vertical Linear Foot
VOC	Volitile Organic Compound
Vol.	Volume
VRP	Vinyl Reinforced Polyester
W	Wire; Watt; Wide; West
w/	With
W.C., WC	Water Column; Water Closet
W.F.	Wide Flange
W.G.	Water Gauge
Wldg.	Welding
W. Mile	Wire Mile
W-O-L	Weldolet
W.R.	Water Resistant
Wrck.	Wrecker
W.S.P.	Water, Steam, Petroleum
WT., Wt.	Weight
WWF	Welded Wire Fabric
XFER	Transfer
XFMR	Transformer
XHD	Extra Heavy Duty
XHHW,	Cross-Linked Polyethylene Wire
XLPE	Insulation
XLP	Cross-linked Polyethylene
Xport	Transport
Y	Wye
yd	Yard
yr	Year
Δ	Delta
%	Percent
~	Approximately
∅	Phase; diameter
@	At
#	Pound; Number
<	Less Than
>	Greater Than
Z	zone

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